BEZBORODOV, A.M.; SAVADEROV, Ye.P.

Study of amino acid medium dynamics during the growth of Actinomyces phaeochromogenes. Eksp. i klin. issl. po antibiot. 2:41-46 '60.

(MIRA 15:5)

(ACTINOMYCES) (AMINO ACID METABOLISM)

BEZBORODOV, A.M.; SHUL'TS, L.M.

Restoration of the free amino acids in the mycelium of actinomyces following nitrogen starvation. Eksp. i klin. issl. po antibiot. 2: 47-52 '60. (MIRA 15:5)

(ACTINOMYCES) (AMINO ACID METABOLISM)
(NITROGEN METABOLISM)

BEZBORODOV, A.M.; NAMESTNIKOVA, V.P.; ISAKOVA, N.P.; KHOPKO, T.V.

Study of fermentation conditions for strain 26/1. Report No.2: Study of the fermentation conditions for strain 26/1 in laboratory fermentors. Eksp. i klin. issl. po antibiot. 2:235-240 '60.

(MIRA 15:5)

(ANTIBIOTICS)
(BACTERIOLOGY--CULTURES AND CULTURE MEDIA)

BEZBORODOV, A.M.; NAMESTNIKOVA, V.P.; KHOPKO, T.V.

Study of fermentation conditions for strain 26/1. Report No.3: Effect of oils and fatty acids on the activity of culture liquid of strain 26/1. Eksp; i klin. issl. po antibiot. 2:241-244 '60. (MIRA 15:5)

(ANTIBIOTICS) (ACIDS, FATTY)
(OILS AND FATS)

BEZBORODOV, A.M.; NAMESTNIKOVA, V.P.

Studies on conditions for the biosynthesis of antibiotic 26/1.
Antibiotiki 5 no.2:20-23 Mr-Ap '60. (MIRA 14:5)

1. Leningradskiy nauchno-issledovatel'skiy institut antibiotikov.
(ANTIBIOTICS)

BEZBORODOV, A. M. (USSR)

"Amino Acid Synthesis in Actinomycetes."

Report presented at the 5th International Biochemistry Congress, Moscow, 10-16 Aug 1961

BEZBORODOV, A.M.

Dynamics of changes in the amino acid content of the nutrient medium in Actinomyces citreofluorescens cultures. Mikrobiologiia 30 no.6: 977-984 N-D '61. (MIRA 14:12)

1. Leningradskiy nauchno-issledovatel'skiy institut antibiotikov.
(AMINO ACID—METABOLISM)
(ACTINOMYCES CITREOFLUORESCENS)

BEZBORODOV, A.M.

Synthesis of aspartic acid by actinomycetes catalyzed by aspartase. Dokl.AN SSSR 138 no.5:1202-1203 Je '61. (MIRA 14:6)

1. Leningradskiy khimiko-farmatsevticheskiy institut. Predstavleno akademikom V.N.Shaposhnikovym.
(Actinomyces) (Aspartase)

BEZBORODOV, A.M.

The reaction of intracellular transamination in actinomycetes.
Dokl.AN SSSR 138 no.6:1446-1448 Je '61. (MIRA 14:6)

1. Leningradskiy khimiko-farmatsevticheskiy institut. Predstavleno akademikom V.N.Shaposhnikovym.
(ACTINOMYCES) (AMINO ACIDS)

BEZBORODOV, A.M.; SEMKINA, L.Ye.

Amino acids in the mycelium and culture medium during the cultivation of Act. aureofaciens. Antibiotiki 7 no.2:118-124 F '62. (MIRA 15:2)

1. Nauchno-issledovatel'skiy institut antibiotikov, Leningrad.
(ACTINOMYCES) (AMINO ACIDS)

BEZBORODOV A. M.

S/121/63/000/001/005/014
A004/A126

AUTHORS: Podurayev, V.N., Bezborodov, A.M.

TITLE: Utilizing natural oscillations for breaking chips

PERIODICAL: Stanki i instrument, no. 1, 1963, 17 - 20

TEXT: Since the various mechanical, hydraulic, pneumatic or electrical methods of producing the necessary vibrations for crushing chips require more or less intricate devices, the authors suggest using for the breaking of chips the natural oscillations originating due to the cutting process. Natural oscillations during the cutting process may be produced 1) by an efficient change of the elastic system machine - workpiece - tool by using special devices, 2) by selecting appropriate cutting conditions and tool geometry with the given system machine - workpiece - tool without any special devices. The authors give a detailed description of both methods, describe a vibrating saddle developed on the basis of investigations carried out by the MVTU im. Bauman, enumerate the factors determining the chip-breaking conditions and point out that the test results obtained prove that this mechanical vibrating saddle ensures reliable chip-breaking during rough turning. There are 6 figures.

Card 1/1

BEZBORODOV, A.M.

Metabolism of nitrogen-containing substances in Actinomyces.
Antibiotiki 7 no.10:936-947 O'62
(MIRA 16:12)

1. Leningradskiy khimiko-farmatsecticheskiy institut.

BEZBORODOV, A. M.

Biosynthesis of aminoacids by actinomycetes. Analele biol 17 no. 4:78-84 Jl-Ag '63.

BEZBORODOV, A.M.; URUSOVA, S.S.; CHERMENSKIY, D.N.; SHUL'TS, L.M.;

Biosynthesis of amino acids in the cultivation of actinomycetes on various media and the effect of inhibitors on this process. Mikrobiologiia 32 no.3:385-390 My-Je '63 (MIRA 17:3)

1. Leningradskiy khimiko-farmatsevticheskiy institut.

BEZBORODOV, A.M.; DOMRACHEVA, L.A.

Utilization of intracellular substrates by actinomycetes in the absence of external sources of nutrition. Nauch. dokl. vys. shkoly; biol. nauki no. 2:162-165 '64. (MIRA 17:5)

1. Rekomendovana kafedroy tekhnologii antibiotikov Leningradskogo khimiko-farmatsevticheskogo instituta.

BEZBORODOV, A.M.

Biosynthesis of amino acids by Actinomyces. Mikrobiologiia 32 no.1:20-26 '63 (MIRA 17:3)

1. Leningradskiy khimiko-farmatsevticheskiy institut.

SHAPOSHNIKOV, V.N., akademik; BEZBORODOV, A.M.; DOMRACHEVA, L.A.; KUPTSOVA, N.I.

Formation and distribution of amino acids in an Actinomyces levoris 2789 culture according to developmental phases. Dokl. AN SSSR 157 no.3:681-683 Jl '64. (MIRA 17:7)

1. Institut mikrobiologii AN SSSR i Leningradskiy khimiko-farmatsevticheskiy institut.

BEZBORODOV, A.M.; LOGINOVA, L.N.; CHEBOTAREV, Ye.N.

Isolation of proteases from the mycelium of actinomycetes and their separation by paper electrophoresis. Nauch. dokl. vys. shkoly; biol. nauki no.4:156-158 '64. (MIRA 17:12)

1. Rekomendovana kafedroy tekhnologii antibiotikov Leningradskogo khimiko-farmatsevticheskogo instituta.

BEZBORODOV, G., general-mayor aviatsii

In close business contact. Av. i kosm. 46 no.5:7-12 My '64.
(MIRA 17:7)

BEZBORODOV, G.

Business ability and concreteness. Grazhd. av. 22 no. 11: 1-3 N '65.
(MIRA 18:12)

1. Nachal'nik Politicheskogo upravleniya grazhdanskoy aviatsii.

MEL'NIKOV, Valentin Ivanovich; BEZBORODOV, Gennadiy Aleksandrovich; ZEYEST,
M.B., red.; PLESKO, Ye.P., red. izd-va; PARAKHINA, N.L., tekhn. red.

[Mechanization of the laying of portable narrow-gauge railroad tracks]
Mekhanizatsiia stroitel'stva perenosnykh uskokoleinykh putei. Moskva,
Goslesbumizdat, 1961. 110 p. (MIRA 14:11)
(Lumbering) (Railroads, Industrial)

PLEKHOV, Nikolay Dmitriyevich; BEZBORODOV, G.N., otv.red.; TEPLYAKOVA, A.S., red.

[Achievements in structural engineering and prospects for its development] Dostizheniia stroitel'noi tekhniki i perspektivy ee razvitiia. Kiev, 1960. 33 p. (Obshchestvo po rasprostraneniiu politicheskikh i nauchnykh znanii Ukrainskoi SSR. Ser.7, no.10). (MIRA 14:2)

1. Chlen-korrespondent Akademii stroitel'stva i arkhitektury USSR (for Plekhov).

(Precast concrete construction) (Ukraine--Apartment houses)

BEZBORODOV, Ivan Iosipovich; KHRICHOV, A.S., inzh., spets.red.; LYALYUK, I.P., red.; LIMANOVA, M.I., tekhn.red.

[My experience in machining on lathes] Mii dosvid roboty na tokarnomu verstati. Kharkiv, Kharkivs'ke knyzhkove vyd-vo, 1959. 71 p. (MIRA 12:12)

1. Tokar-instrumental'nik kharkivs'kogo zavodu "Serp i molot" (for Bezborodov).

(Turning--Technological innovations)

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

CA BEZBORODOV, M.A.

19

Influence of cullet on physicochemical properties of glass. M. A. Bezborodov. *Keramika i Steklo* 5, 301-2(1929). Tests are described from which the following conclusions were drawn: The quantity of cullet in the batch has practically no influence on the chem. compn. and the coeff. of expansion of the glass, or on the chem. stability of the glass. The content of cullet in the batch apparently affects the thermal stability of the glass, and increases its tenacity.

M. V. Kondoidy

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND LETTER

AUTHOR INDEX

3RD LETTER

METALLURGICAL LITERATURE CLASSIFICATION

e

Belyankin, D. S., and Bezborodov, M. A. FORMATIONS RESULTING FROM CONTACT METAMORPHISM IN WORKS PRACTICE. *Compt. rend. acad. Sci. U. R. S. S.*, 15, 357 (1920).—Silica brick forming the arch of the ports had, under the action of batch dust, been partly melted at the edges forming stalactites. Composition of these stalactites were compared in tables to that of the glass metal in the furnace and either the silica or fire-clay brick which had been used in the furnace construction.

COMMON VARIABLES INDEX

PROCESSES AND PROPERTIES INDEX

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

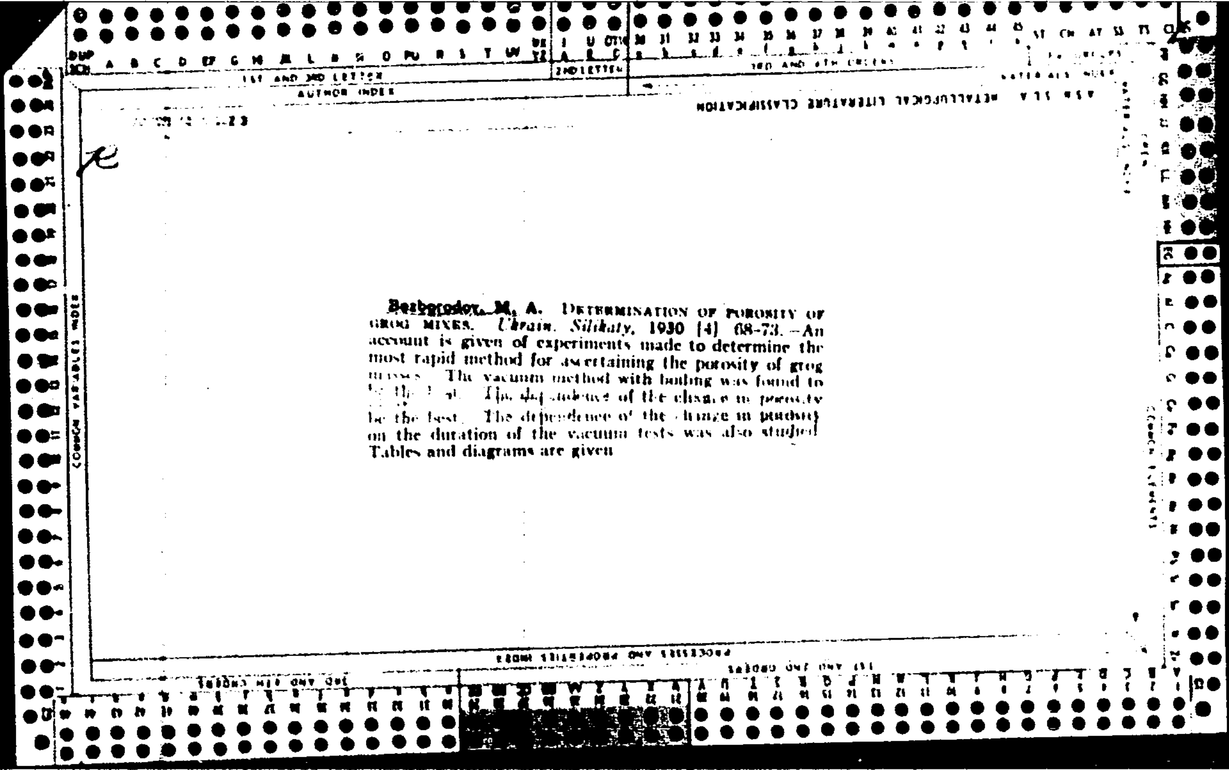
PROCESSES AND PROPERTIES INDEX

CN

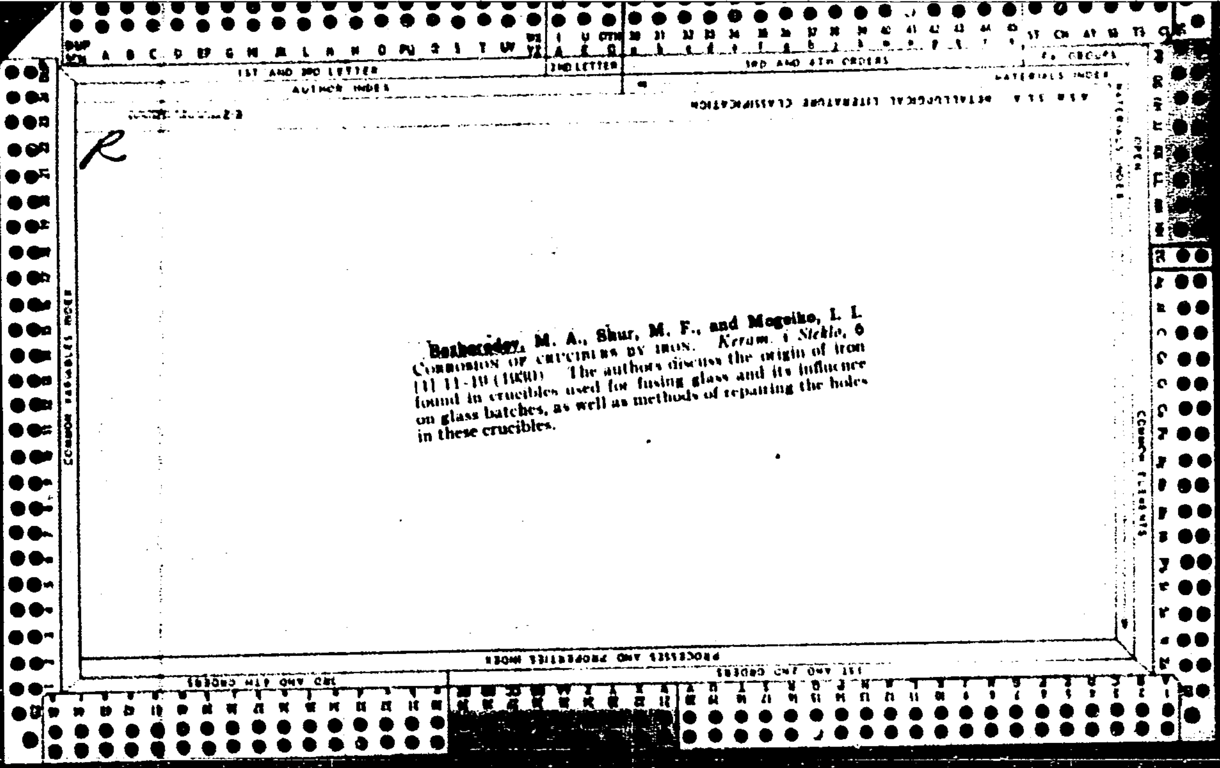
19

Comparative studies of the resistivity of Russian and foreign chemical glassware. M. A. Besborodov. *Keram. Rundschau.* 37, 121–3, 166–8(1929).—Methods and results of treating resistant lab. glassware with hot KOH, NaOH, K_2CO_3, Na_2CO_3 and Na_2HPO_4 are described. Russian glassware is comparable with non-Russian in its resistance to attack. In general, the higher the Al_2O_3 content (up to a max.) the greater the resistance to Na_2CO_3 soln., and the higher the CaO content the greater the resistance to NaOH soln. The replacement of B_2O_3 by Al_2O_3 gives the glass a better resistance to water and Na_2CO_3 soln. and lowers the resistance to NaOH soln. H. Insley

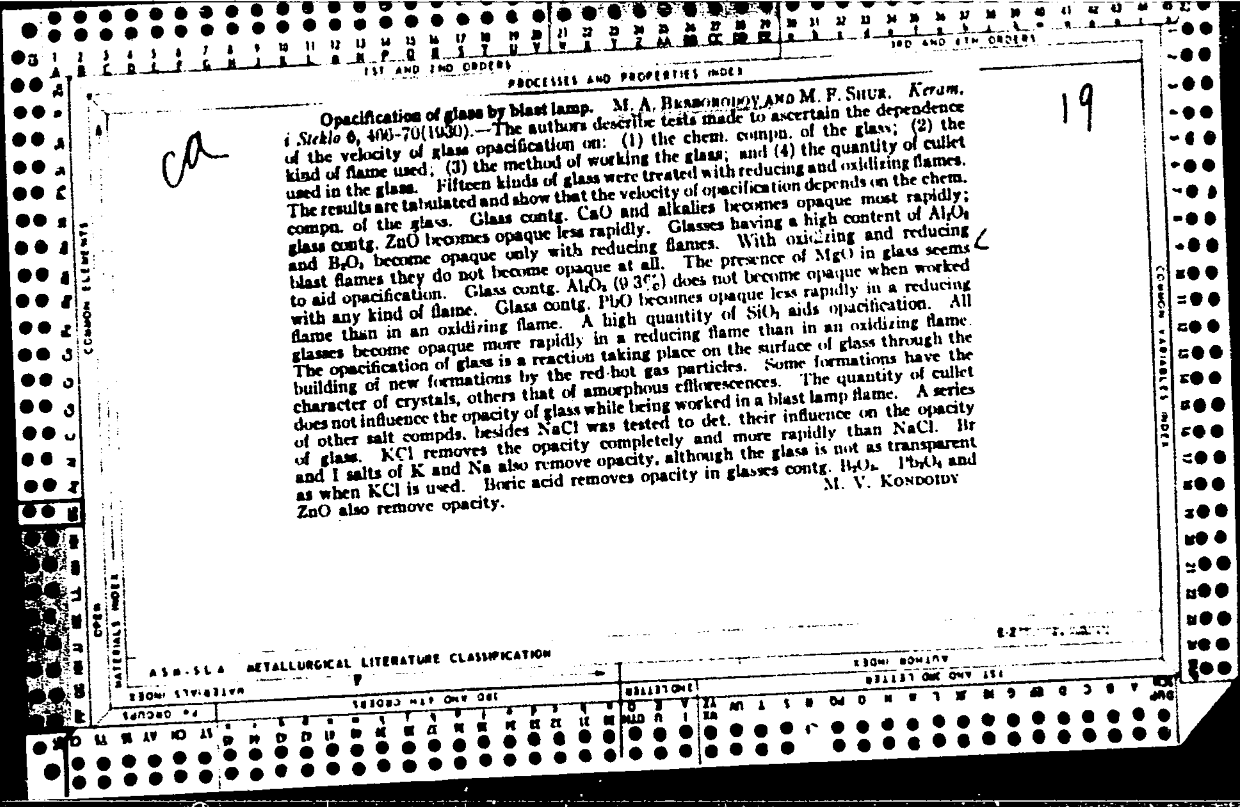
ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION


1ST AND 2ND LETTER
AUTHOR INDEX
ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION
PROCESSES AND PROPERTIES INDEX

Bezborodov, M. A. DETERMINATION OF POROSITY OF GROG MIXES. *Ukrain. Silikaty*, 1930 (4) 68-73.—An account is given of experiments made to determine the most rapid method for ascertaining the porosity of grog mixes. The vacuum method with boiling was found to be the best. The dependence of the change in porosity be the best. The dependence of the change in porosity on the duration of the vacuum tests was also studied. Tables and diagrams are given.


1ST AND 2ND LETTER
AUTHOR INDEX
2ND LETTER
3RD AND 4TH ORDERS
MATERIALS INDEX
A S M - S L A METALLURGICAL LITERATURE CLASSIFICATION
COMMON VARIABLES INDEX
COMMON ELEMENTS
PROCESSES AND PROPERTIES INDEX
1ST AND 2ND ORDERS
3RD AND 4TH ORDERS
R

Bezborodov, M. A., Shur, M. F., and Mogeiko, I. I. CORROSION OF CRUCIBLES BY IRON. *Keram. i Steklo*, 6 [11] 11-13 (1930). The authors discuss the origin of iron found in crucibles used for fusing glass and its influence on glass batches, as well as methods of repairing the holes in these crucibles.


1ST AND 2ND ORDERS
PROCESSES AND PROPERTIES INDEX
3RD AND 4TH ORDERS
COMMON ELEMENTS
COMMON VARIABLES INDEX
MATERIALS INDEX
OPEN
ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

ca

19

Opacification of glass by blast lamp. M. A. Bezborodov and M. F. Shur. *Keram. i Steklo* 6, 400-70(1930).—The authors describe tests made to ascertain the dependence of the velocity of glass opacification on: (1) the chem. compn. of the glass; (2) the kind of flame used; (3) the method of working the glass; and (4) the quantity of cullet used in the glass. Fifteen kinds of glass were treated with reducing and oxidizing flames. The results are tabulated and show that the velocity of opacification depends on the chem. compn. of the glass. Glass contg. CaO and alkalies becomes opaque most rapidly; glass contg. ZnO becomes opaque less rapidly. Glasses having a high content of Al_2O_3 and B_2O_3 become opaque only with reducing flames. With oxidizing and reducing blast flames they do not become opaque at all. The presence of MgO in glass seems to aid opacification. Glass contg. Al_2O_3 (9.3%) does not become opaque when worked with any kind of flame. Glass contg. PbO becomes opaque less rapidly in a reducing flame than in an oxidizing flame. A high quantity of SiO_2 aids opacification. All glasses become opaque more rapidly in a reducing flame than in an oxidizing flame. The opacification of glass is a reaction taking place on the surface of glass through the building of new formations by the red-hot gas particles. Some formations have the character of crystals, others that of amorphous efflorescences. The quantity of cullet does not influence the opacity of glass while being worked in a blast lamp flame. A series of other salt compds. besides NaCl was tested to det. their influence on the opacity of glass. KCl removes the opacity completely and more rapidly than NaCl. Br and I salts of K and Na also remove opacity, although the glass is not as transparent as when KCl is used. Boric acid removes opacity in glasses contg. B_2O_3. Pb_3O_4 and ZnO also remove opacity. M. V. Kondoidy

L

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

Ca

17

Thermal endurance of glass. M. A. Bezborodov. *Glashütte* 60, 501(1930); *J. Soc. Glass Tech.* 14, 282-3A.—Previous work by the author (*Keramika i Steklo*, 1929, No. 6, 208) has shown that in the case of lab. ware the thermal endurance is a function of the ratio of the max. thickness to the min. thickness as well as dependent on the other phys. properties in accordance with the formula adopted by V. Stott (*C. A.* 19, 1183). Rods of a borosilicate glass 8 cm. in length and of varying thicknesses were tested by quenching in water. The resistance to heat increased with decreasing thickness of the rods. Unannealed glass was more resistant than annealed. G. G.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

0A

19

Influence of cullet on some physical and chemical properties of glass. M. A. Bezborodov. *Keram. i Steklo* **7**, No. 4, 11-8(1931).—B. describes exptl. fusions with addns. of different quantities of cullet to the batch. The investigations were made on glasses of 4 different compns.: (1) Na-lime-silica glass; (2) lab. glass, (3) thermometrical glass; and (4) glass for elec. bulbs. The addns. of cullet to the batch were 20, 40, 60 and 80%. One batch of each glass without cullet was fused. *Conclusions.*—(1) The chem. analyses showed that the quantity of cullet in the batch has no effect on the chem. compn. of glass. (2) In some series of glasses, a decrease in the coeff. of expansion with an increased quantity of cullet was noticed, but not confirmed in all cases. Samples of glasses taken from the upper part of the glass tanks at the beginning of the working up had a smaller coeff. of expansion than samples taken at the end of working from the lower layers of the glass tanks. (3) The chem. stability of glasses does not depend on the quantity of cullet in the batch. (4) The quantity of cullet does not influence the velocity of opacification of glasses during working on a blast burner.

M. V. Kondoidy

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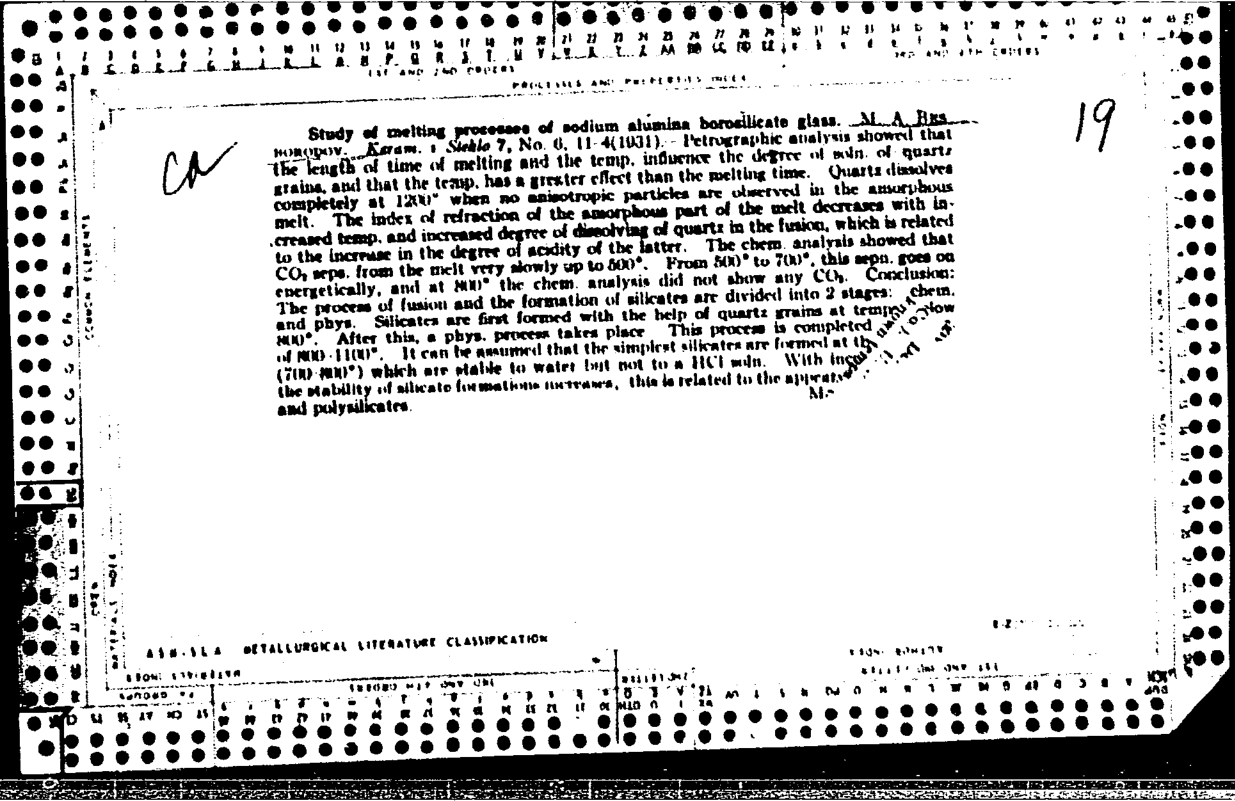

PROCESSES AND PROPERTIES INDEX

CA

19

Study of melting processes of sodium alumina borosilicate glass. M. A. Bezborodov. *Keram. i Steklo* 7, No. 6, 11-4(1931).—Petrographic analysis showed that the length of time of melting and the temp. influence the degree of soln. of quartz grains, and that the temp. has a greater effect than the melting time. Quartz dissolves completely at 1200° when no anisotropic particles are observed in the amorphous melt. The index of refraction of the amorphous part of the melt decreases with increased temp. and increased degree of dissolving of quartz in the fusion, which is related to the increase in the degree of acidity of the latter. The chem. analysis showed that CO_2 seps. from the melt very slowly up to 500°. From 500° to 700°, this sepn. goes on energetically, and at 800° the chem. analysis did not show any CO_2. Conclusion: The process of fusion and the formation of silicates are divided into 2 stages: chem. and phys. Silicates are first formed with the help of quartz grains at temp [illegible] low 800°. After this, a phys. process takes place This process is completed [illegible] of 800-1100°. It can be assumed that the simplest silicates are formed at th [illegible] (700-800°) which are stable to water but not to a HCl soln. With inc [illegible] the stability of silicate formations increases, this is related to the appear [illegible] and polysilicates.

M.

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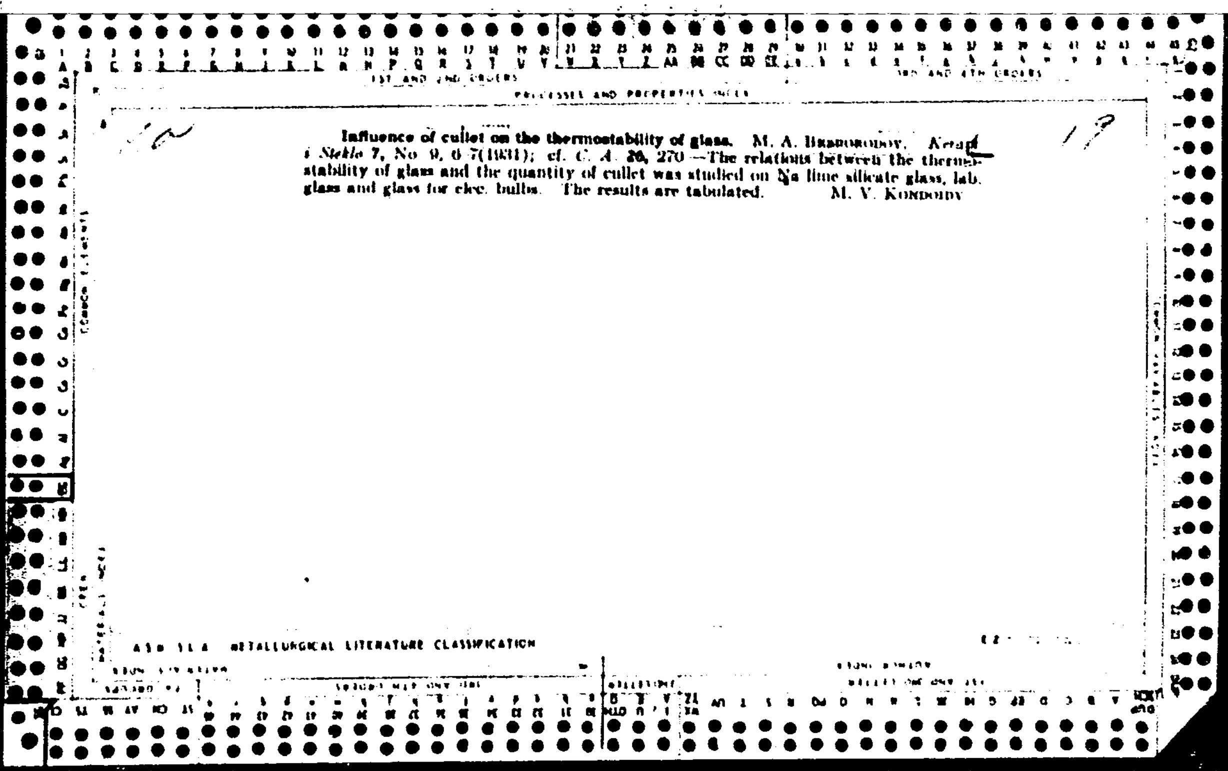

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

17

Influence of cullet on the thermostability of glass. M. A. Bezborodov. *Keram. i Steklo* 7, No 9, 6-7(1931); cf. *C. A.* **26**, 270.—The relations between the thermostability of glass and the quantity of cullet was studied on Na lime silicate glass, lab. glass and glass for elec. bulbs. The results are tabulated. M. V. Kondoidy

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

CA

19

New problems of glass melting. M. A. BESBORODOV. *Keram Steklo* 8, No. 9, 23-5(1932); cf. *C. A.* 26, 570.--Further study of the phys. and chem. processes taking place during melting, the microscopic structure of melts at different temps., the appearance and disappearance of bubbles and striae, the equil. systems of binary, ternary and multicomponent systems, and the elec. melting of glass, should be made to rationalize the industry.

M. V. KONDOIDY

MATERIALS INDEX

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

9

Soldering glass tubes. M. A. Bezborodov. *Keram. i Steklo* **8**, No. 10, 33-5 (1932). A no. of glass tubes having different coeffs. of expansion were soldered together. The strength of the soldering was detd. by investigating the thermal resistance of the soldered glass tubes. All the soldered glasses were annealed and observed in a polarizing app. No stresses were seen and there was no regularity in the relation between the difference of the coeffs. of expansion and the strength of the soldering. Soldering is not a function of the coeffs. of expansion only (for low temps.) of soldered glasses.

M. V. Kondonov

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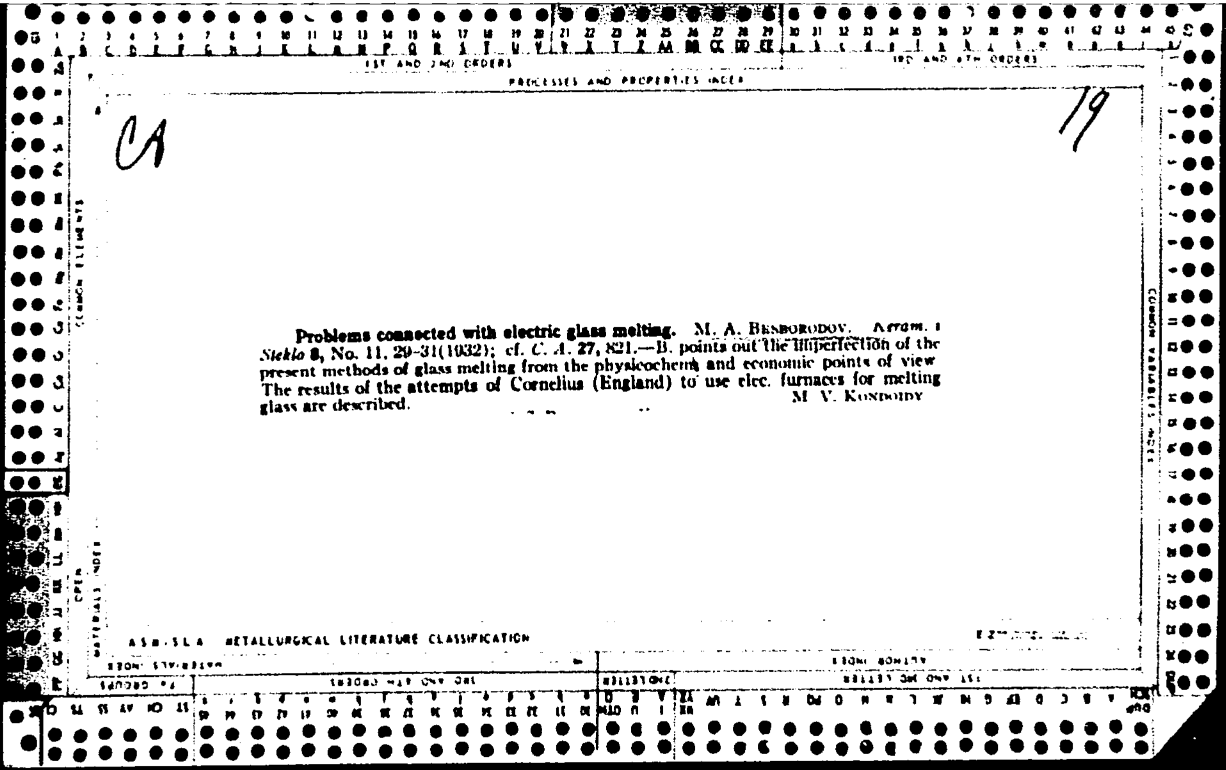


1ST AND 2ND ORDERS
3RD AND 4TH ORDERS
PROCESSES AND PROPERTIES INDEX
ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

CA

19

Problems connected with electric glass melting. M. A. BESBORODOV. *Keram. i Steklo* **8**, No. 11, 29-31(1932); cf. *C. A.* **27**, 821.—B. points out the imperfection of the present methods of glass melting from the physicochem. and economic points of view. The results of the attempts of Cornelius (England) to use elec. furnaces for melting glass are described. M. V. KONDOIDY

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

19

Petrographic control in the glass industry. D. S. Belyankin and M. A. Bezborodov. *Zavodskaya Lab.* 1933, No. 7, 41-8.—Inclusions ("stones") in glass can be studied either by chem. or by microscopical means. The latter method is more rapid and serves as an excellent means for the control of the quality of the glass. S. L. Madorsky

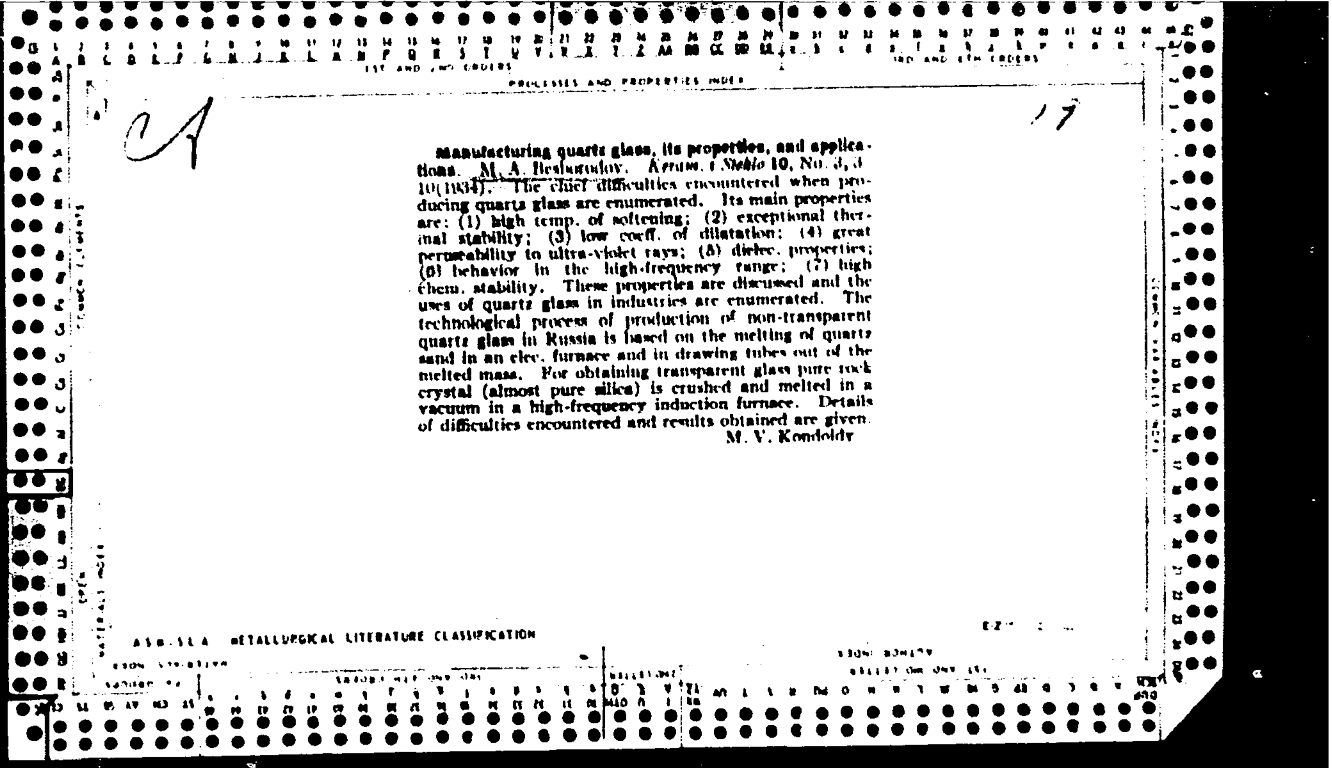
ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

PROCESSES AND PROPERTIES INDEX

The ehavior of soda in isothermal heating. M. A. Be J. Applied Chem. (U. S. S. R.) 7, 517–28 (1934).—Charges of Na_2CO_3 alone or in mixts. with powd. ullet were treated for various durations in Pt and porce n crucibles. The resultant loss in weight was affect by the depth of the charge, the temp. and the durati of heating. It did not exceed 1.57% on heatin at 1000° for 3 hrs. in Pt crucibles, while heating at 800 caused a loss of only 0.2%. The loss was heavier in por in crucibles, because of the reaction with the crucib material. The presence of cullet scarcely affected the ex nt of the reaction at 800°, but at 1000° in Pt, as well a n porcelain crucibles, the loss in weight (CO_2) was almo theoretical. Expts. made by a dynamic method confir d the assumption that the loss in weight was cause by the liberation of CO_2. The expts. are described.

A. A. Boehtlingk

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



PROCESSES AND PROPERTIES INDEX

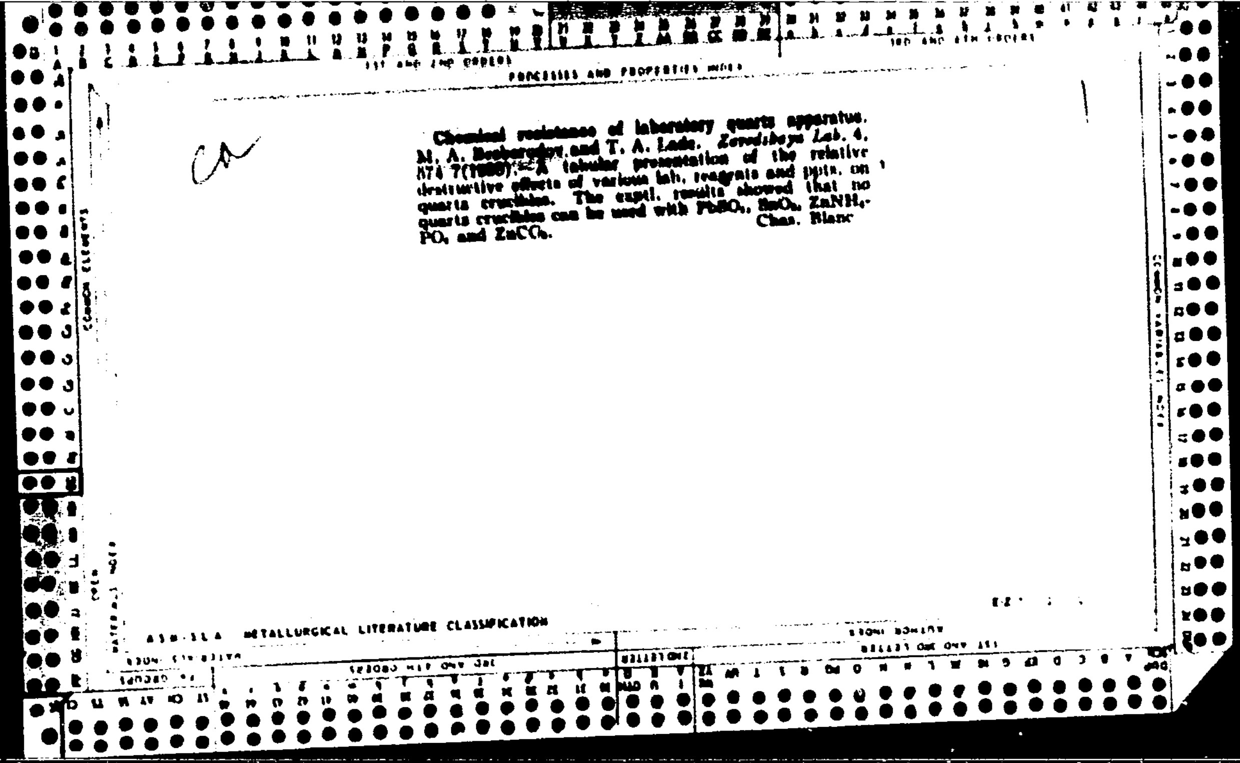
CA

17

Manufacturing quartz glass, its properties, and applications. M. A. Besluzulov. *Keram. i Steklo* 10, No. 3, 3-10(1934). The chief difficulties encountered when producing quartz glass are enumerated. Its main properties are: (1) high temp. of softening; (2) exceptional thermal stability; (3) low coeff. of dilatation; (4) great permeability to ultra-violet rays; (5) dielec. properties; (6) behavior in the high-frequency range; (7) high chem. stability. These properties are discussed and the uses of quartz glass in industries are enumerated. The technological process of production of non-transparent quartz glass in Russia is based on the melting of quartz sand in an elec. furnace and in drawing tubes out of the melted mass. For obtaining transparent glass pure rock crystal (almost pure silica) is crushed and melted in a vacuum in a high-frequency induction furnace. Details of difficulties encountered and results obtained are given.

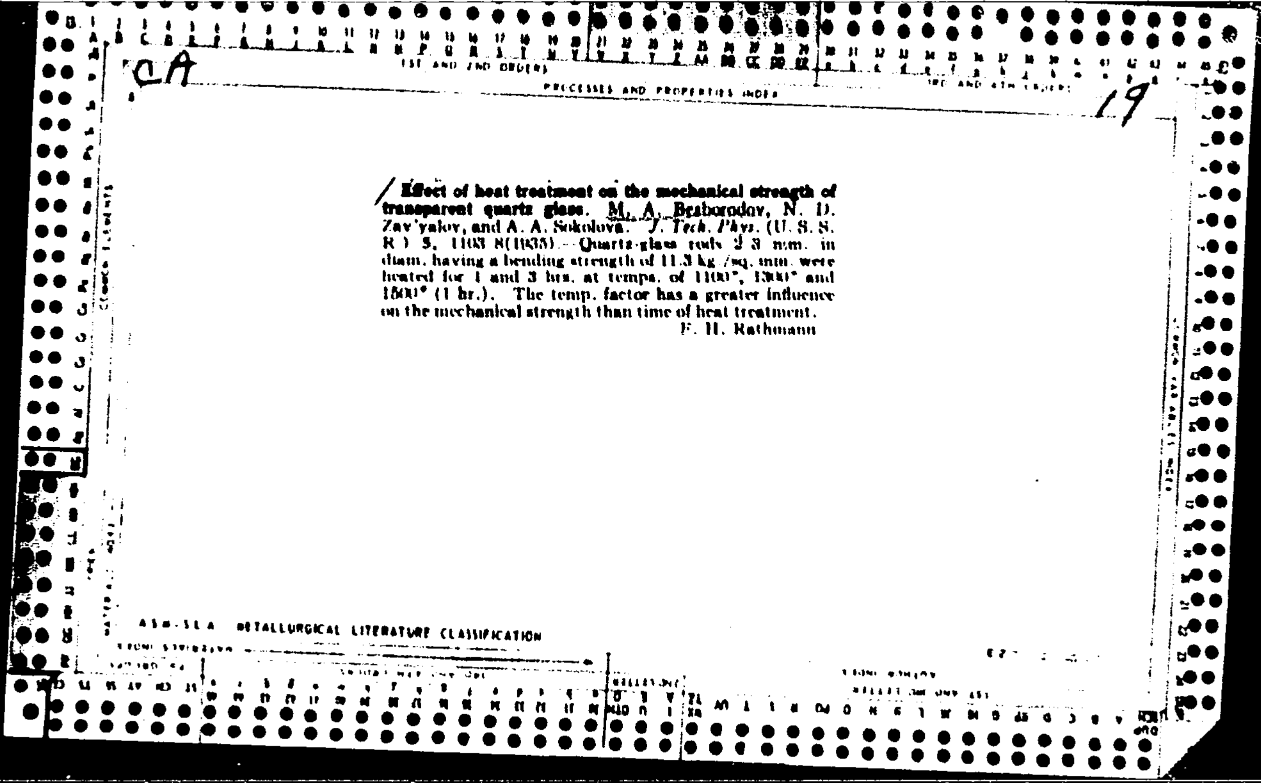
M. V. Kondoidy

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION


1ST AND 2ND ORDERS
PROCESSES AND PROPERTIES INDEX
3RD AND 4TH ORDERS
ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

Ca

Chemical resistance of laboratory quartz apparatus. M. A. Bezborodov and T. A. Lade. *Zavodskaya Lab.* 4, 874-7(1935).—A tabular presentation of the relative destructive effects of various lab. reagents and ppts. on quartz crucibles. The exptl. results showed that no quartz crucibles can be used with $PbSO_4$, SnO_2, $ZnNH_4PO_4$ and $ZnCl_2$. Chas. Blanc



CA

19

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

Effect of heat treatment on the mechanical strength of transparent quartz glass. M. A. Bezborodov, N. D. Zav'yalov, and A. A. Sokolova. *J. Tech. Phys.* (U. S. S. R.) 5, 1103-8(1935).—Quartz-glass rods 2-3 mm. in diam. having a bending strength of 11.3 kg./sq. mm. were heated for 1 and 3 hrs. at temps. of 1100°, 1300° and 1500° (1 hr.). The temp. factor has a greater influence on the mechanical strength than time of heat treatment.

F. H. Rathmann

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

PROCESSES AND PROPERTIES INDEX

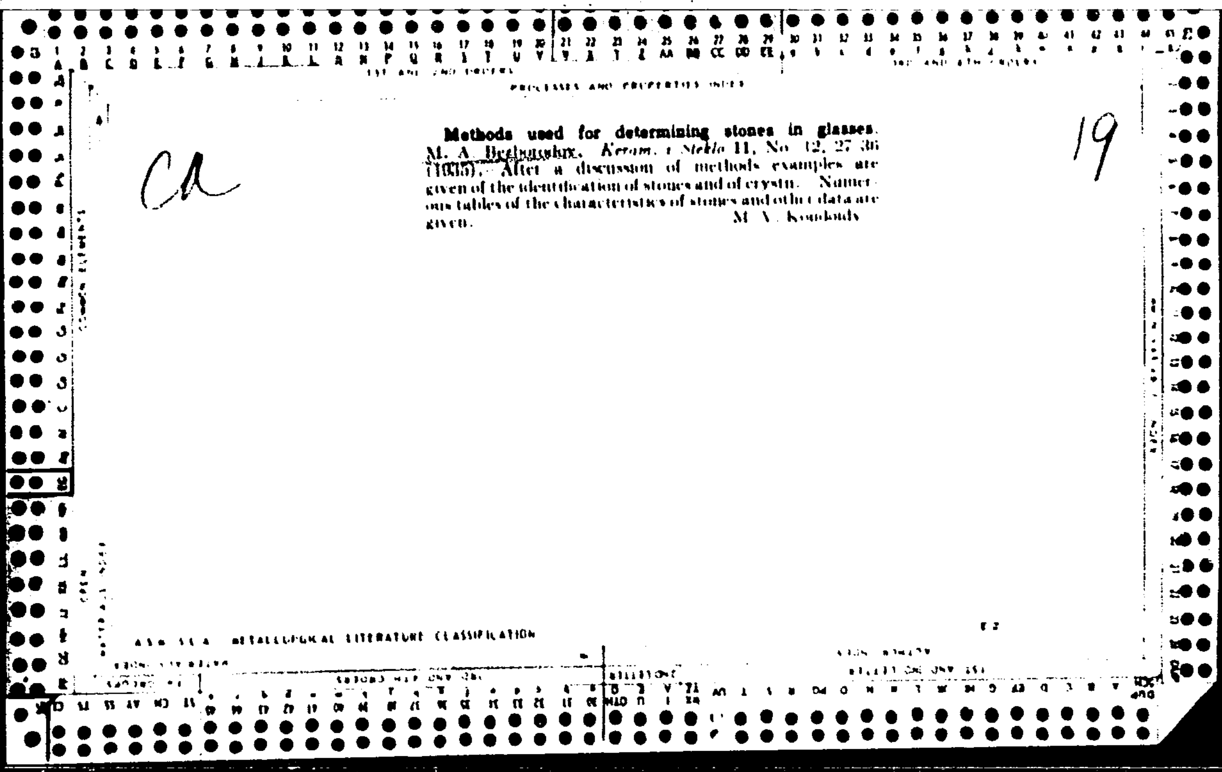
ca

19

Effect of CO_2 on the melting of glass. M. A. Bezborodov, A. A. Sokolova and G. A. Shinke. *Keram i Steklo* 11, No. 5, 26-30(1935).—Soda and sulfate batches were melted at 900°, 1000°, 1100°, 1200° and 1300° in air and in CO_2. A transparent glass with tiny bubbles was obtained at 1200° without traces of unmelted batch. At 1300°, colorless glass without bubbles was produced by melting in air. It has a bluish greenish tint when melted in CO_2. Pure transparent glass with tiny bubbles was obtained at 1300° from sulfate batches. The glass is not homogeneous at 1200°, the mass has a glass like appearance but is not transparent. CO_2 has no marked effect on the content of bubbles in the glass. Chem. study of soda and sulfate melts showed that: (*a*) the abs. amt. of CO_2 present in all melts is small; (*b*) the amt. of CO_2 gradually decreases with increasing temp.; (*c*) melts obtained in CO_2 always contain more of it; however, this difference is so small (0.02%) that it has no practical effect; (*d*) the curve of the SO_3 content has a max. at 1100° in all melts; the SO_3 content decreases with increasing temp.; (*e*) melts produced in CO_2 have a higher SO_3 content than those melted in air. The max. on the SO_3 curve at 1100° is due to an interchangeable disintegration of the components of the batch and variable soly. of silicates, gases and batch components at various temps. Expts. showed that CO_2 has no marked effect on the degree of purity of the glass.

M. V. Kondoidy

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



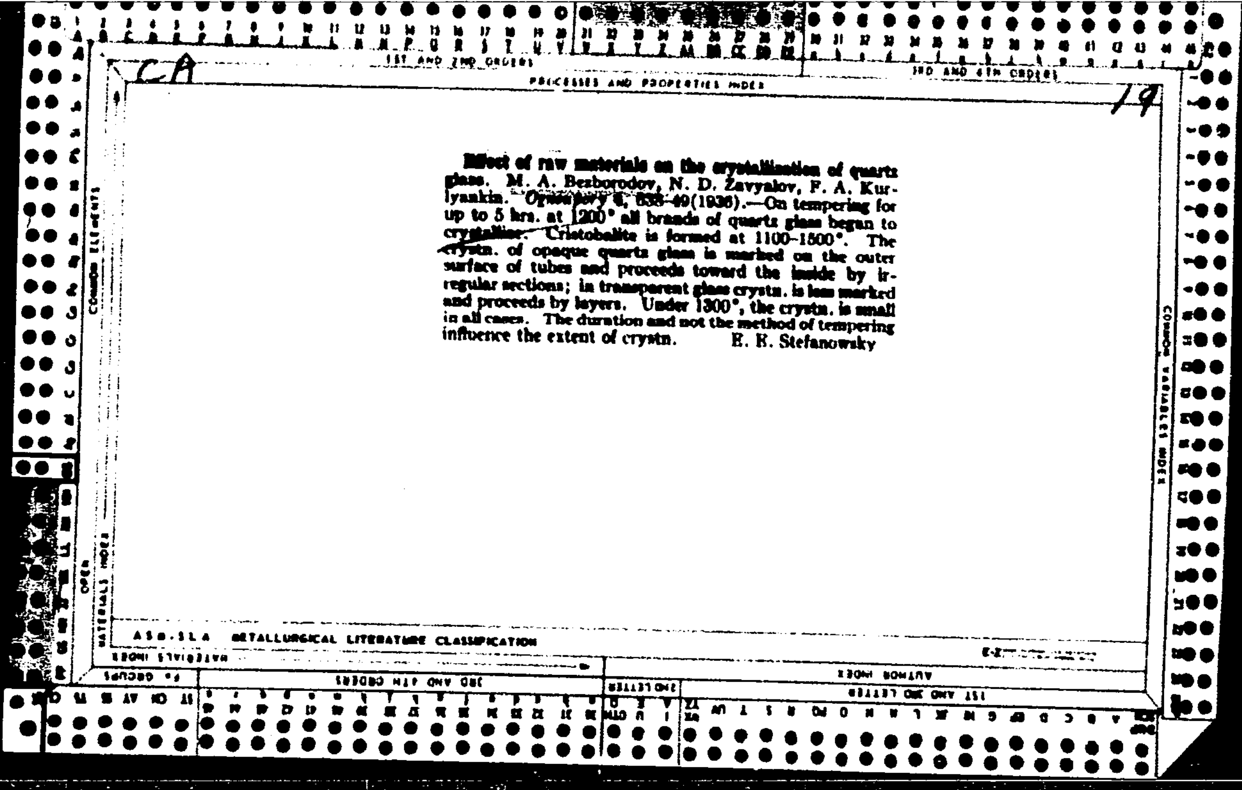
PROCESSES AND PROPERTIES INDEX

Ca

19

Methods used for determining stones in glasses. M. A. Bezborodov. *Keram. i Steklo* 11, No. 12, 27-36 (1935).—After a discussion of methods examples are given of the identification of stones and of crystn. Numerous tables of the characteristics of stones and other data are given. M. V. Kondoidy

A S M - S L A METALLURGICAL LITERATURE CLASSIFICATION



CA

PROCESSES AND PROPERTIES INDEX

19

Effect of raw materials on the crystallization of quartz glass. M. A. Bezborodov, N. D. Zavyalov, F. A. Kurlyankin. *Ogneupory* 4, 638-49(1936).—On tempering for up to 5 hrs. at 1200° all brands of quartz glass began to crystallize. Cristobalite is formed at 1100-1500°. The crystn. of opaque quartz glass is marked on the outer surface of tubes and proceeds toward the inside by irregular sections; in transparent glass crystn. is less marked and proceeds by layers. Under 1300°, the crystn. is small in all cases. The duration and not the method of tempering influence the extent of crystn. E. R. Stefanowsky

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

Ca

19

The behavior of potassium nitrate and arsenic trioxide during the heating of the glass batch. M. A. Bezborodov, N. D. Zav'yalov, T. A. Lade and G. M. [illegible] *J. Applied Chem.* (U. S. S. R.) 10, 1407–20 (in German 1420) (1937).—Twelve mixts. were investigated and the curves of the loss of wt. of mixts. for 100–600° are constructed. Sixteen references. A. A. Podgorny

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

MATERIALS INDEX

AUTHOR INDEX

3RD AND 4TH ORDERS

1ST AND 3RD LETTER

PROCESSES AND PROPERTIES INDEX

BC

A 1

Influence of ammonium sulphate on the physical and chemical processes taking place during fusion of soda-lime-silica glass. M. A. Bezborodov and N. O. Abeltschuk (J. Appl. Chem. Russ., 1938, 11, 234—252).—Dry $(NH_4)_2SO_4$ fuses, and simultaneously dissociates, at 250°, forming a film covering the particles of $CaCO_3$, Na_2CO_3, and SiO_2. It then reacts chiefly with Na_2CO_3 to yield Na_2SO_4, which, again, acts as a solvent for Na_2CO_3. In this way the surface of contact of the constituents of the mixture SiO_2–$CaCO_3$–Na_2CO_3 is greatly increased, so facilitating silicate formation at >300°.

R. T.

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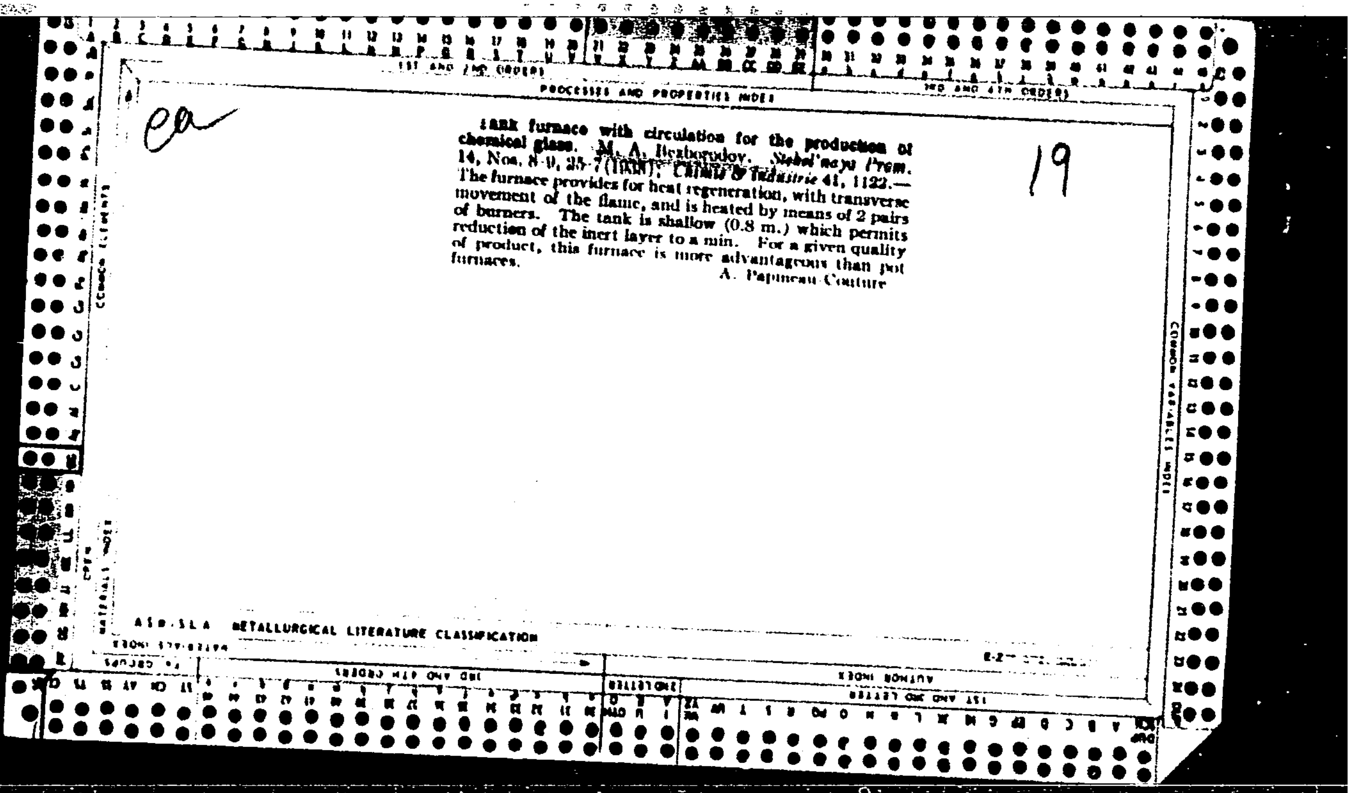

1ST AND 2ND ORDERS
PROCESSES AND PROPERTIES INDEX
3RD AND 4TH ORDERS
ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION
3RD AND 4TH ORDERS
AUTHOR INDEX
1ST AND 2ND LETTER

ea

19

Tank furnace with circulation for the production of chemical glass. M. A. Bezborodov. *Stekol'naya Prom.* 14, Nos. 8-9, 25-7(1938); *Chimie & Industrie* 41, 1122.—The furnace provides for heat regeneration, with transverse movement of the flame, and is heated by means of 2 pairs of burners. The tank is shallow (0.8 m.) which permits reduction of the inert layer to a min. For a given quality of product, this furnace is more advantageous than pot furnaces.

A. Papineau-Couture

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

BC

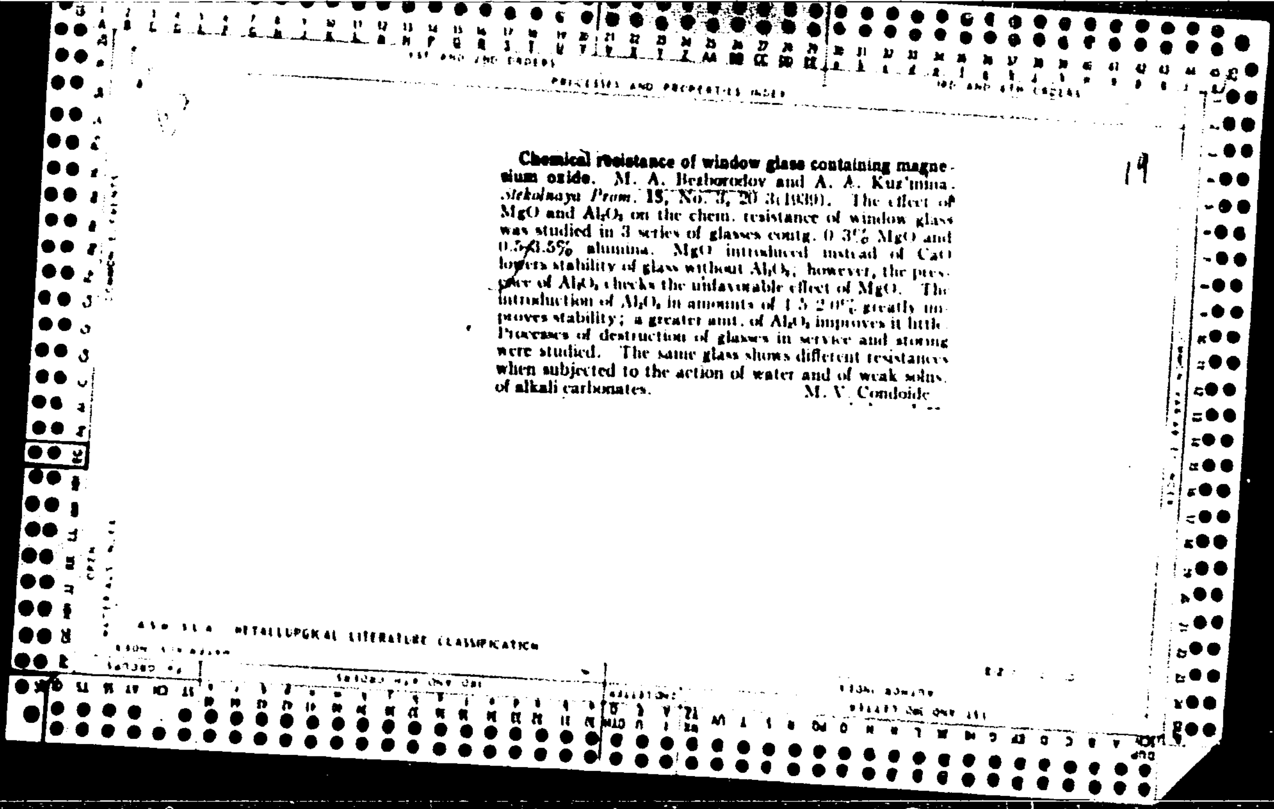
B-1-9

Luminescence method of detecting cords in glass. M. A. Besborodov and N. O. Abeltschuk (*Zavod. Lab.*, 1939, 8, 65—68).—Cords due to an accumulation of Al_2O_3 show, and of SiO_2 do not show, a yellow fluorescence when illuminated with light of λ 3600 A.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

MATERIALS INDEX

AUTHOR INDEX



PROCESSES AND PROPERTIES INDEX

19

Chemical resistance of window glass containing magnesium oxide. M. A. Bezborodov and A. A. Kuz'mina. *Stekolnaya Prom.* 15, No. 3, 20-3(1939). The effect of MgO and Al_2O_3 on the chem. resistance of window glass was studied in 3 series of glasses contg. 0-3% MgO and 0.5-3.5% alumina. MgO introduced instead of CaO lowers stability of glass without Al_2O_3; however, the presence of Al_2O_3 checks the unfavorable effect of MgO. The introduction of Al_2O_3 in amounts of 1.5-2.0% greatly improves stability; a greater amt. of Al_2O_3 improves it little. Processes of destruction of glasses in service and storing were studied. The same glass shows different resistances when subjected to the action of water and of weak solns. of alkali carbonates.

M. V. Condoide

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

19

Significance of the mineralogical composition of quartz sand when glass is melted. M. A. Bezborodov, A. C. Zaporozhtzwa and I. G. Moiseeva. *Stekol'naya Prom.* 15, No. 7, 26-9(1939).—(1) When quartz sands are evaluated it is necessary to know not only their chem. and granulometric compn., but also their mineralogical compn. (2) Because of the difficulty of dissolving sep. minerals, particularly zircon and cyanite, it is of the greatest importance to observe the melting of the glass so that incompletely melted components will not penetrate into the working zone, and will not be dissolved later by the glass mass. (3) Besides the minerals mentioned, experience shows the difficult assimilation of small lumps of kaolin. (4) Iron inclusions in the form of particles which are introduced into the melt in one way or another are also difficult to digest. (5) It is necessary to use a polarization microscope for a thorough study of stones present in glass and their mineralogical compn. M. V. Condoide

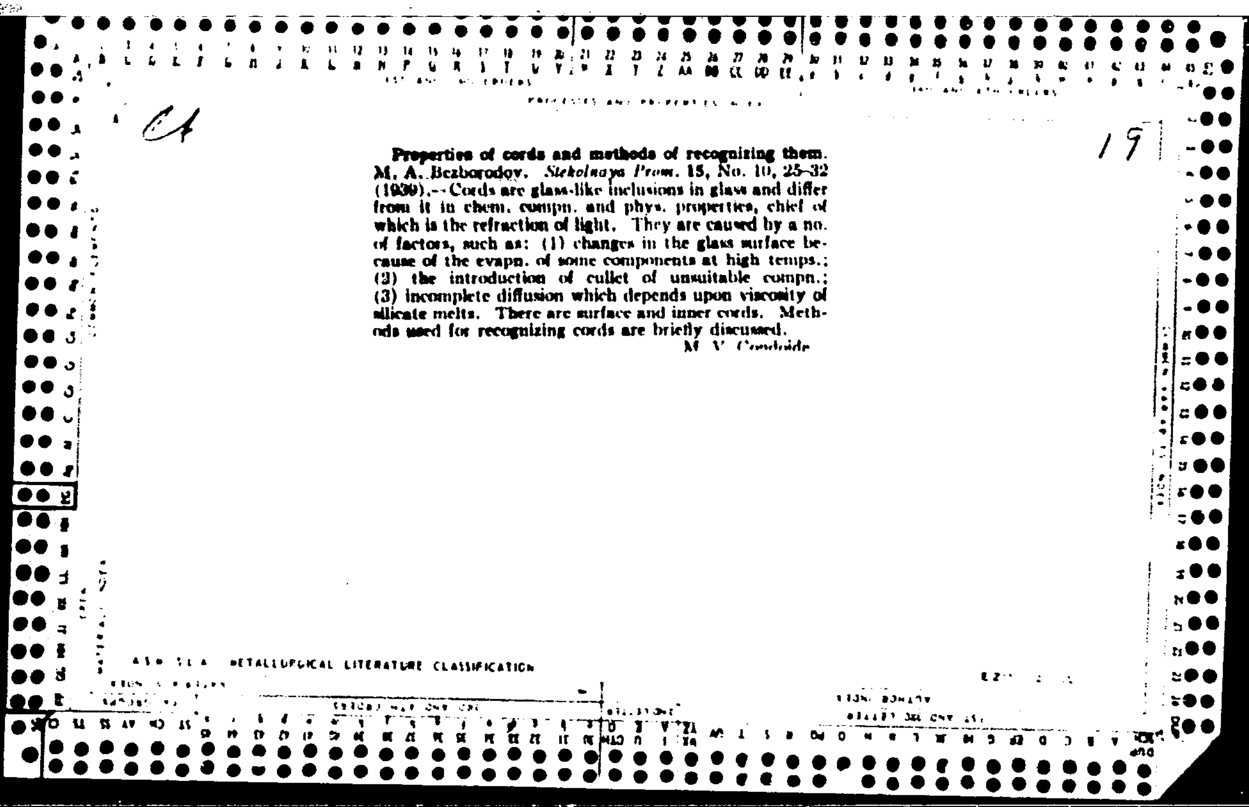
ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

MATERIALS INDEX

AUTHOR INDEX

3RD AND 4TH ORDERS

1ST AND 2ND LETTER



C4

19

Properties of cords and methods of recognizing them. M. A. Bezborodov. *Stekolnaya Prom.* 15, No. 10, 25-32 (1939).—Cords are glass-like inclusions in glass and differ from it in chem. compn. and phys. properties, chief of which is the refraction of light. They are caused by a no. of factors, such as: (1) changes in the glass surface because of the evapn. of some components at high temps.; (2) the introduction of cullet of unsuitable compn.; (3) incomplete diffusion which depends upon viscosity of silicate melts. There are surface and inner cords. Methods used for recognizing cords are briefly discussed.

M. V. Condoide

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

A C.S.

Glass

Effect of alumina and magnesia on the chemical resistance of window glass. M. A. BEZBORODOV. *Nauch.-tekh. konferentsiya v Svyazi s 40-letnei Yubilei Uchebno-Nauch. Deyateln. Tomsk. Ind. Inst.*, 1940, p. 98; *Khim. Referat. Zhur.*, 4 [4] 110 (1941). M. Ho.

CA

17

Experiments in the preparation of hollow glass blocks and their properties. M. A. Bezborodov, N. N. Ostrovskaya and I. G. Klochkov. *Stekol'naya Prom.* 16, No. 3/4, 20-3(1940); *Chem. Zentr.* 1940, II, 1196.—A review of manufacturing hollow glass bricks and their uses is given. Expts. on making such products at the glass factory "Druzhnaya Gorka" are reported. A mixt. of sand 90 and Na silicate 10% is used to cement the bricks. All of the sand goes through a sieve of 4900 meshes per sq. cm. and 60% through a sieve of 10,000 meshes per sq. cm.

M. Hosch

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

CA

19

COMMON ELEMENTS

COMMON VARIABLES INDEX

The fusing together of cased glasses. M. A. Bezborodov. *Legkaya Prom.* 1, No. 5, 30-3(1941); *Chem. Zentr.* 1943, II, 455.—A theoretical discussion, based on the work of Gehlhoff and Thomas (*Sprechsaal* 1926, No. 42, 697-9; *C.A.* 20, 3066) together with a report of B.'s expts. in the production of cased or laminated glasses of 2 or more layers. Special consideration is given to the fusing together of the individual layers of colored and colorless glasses so as to prevent breakage as the result of the development of different strains. M. G. Moore

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

MATERIALS INDEX

AUTHOR INDEX

1ST AND 3RD LETTER

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

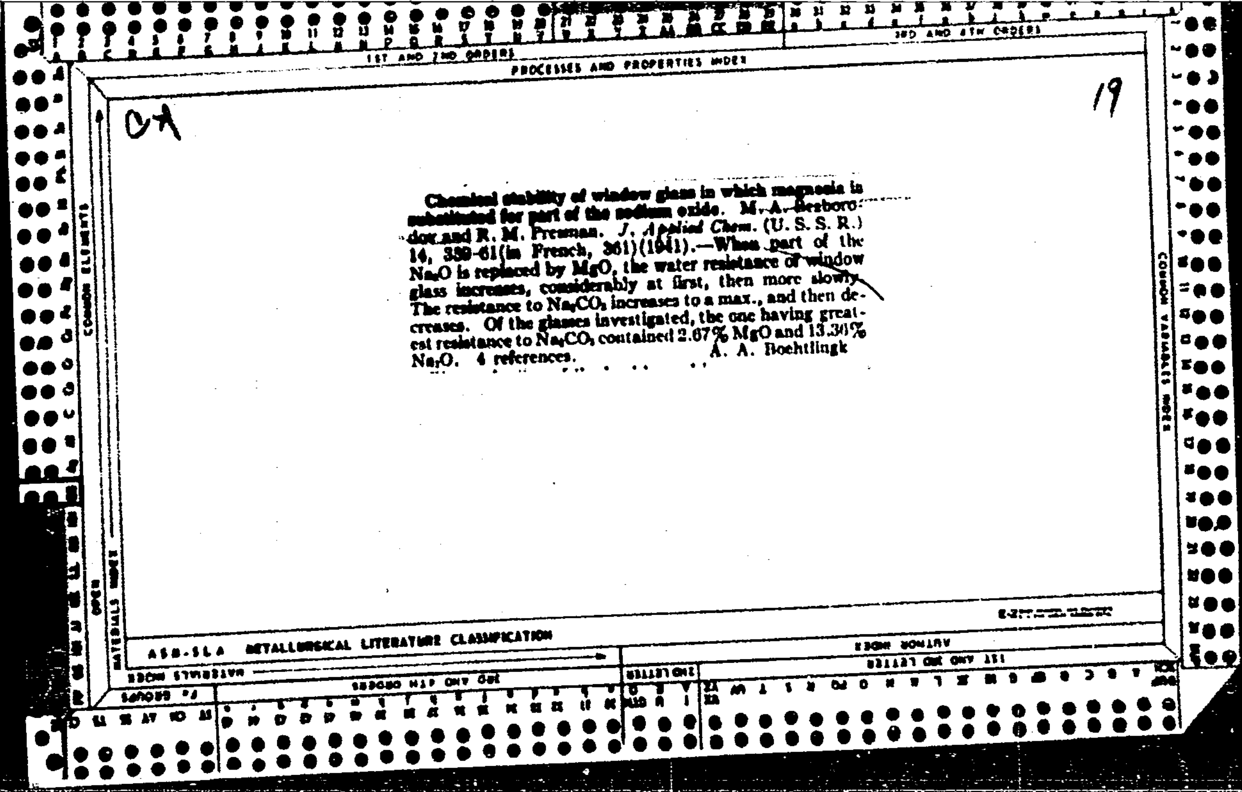
3RD AND 4TH ORDERS

a A

19

Determination of some physical and chemical properties of fiber glass. M. A. Bezborodov and A. I. Randau. *Zavodskaya Lab.* 10, 182-5(1941); *Chem. Zentr.* 1943, II, 1304.—Methods for the detn. of chemical resistance and tensile strength of fiber glass were established. The diam. of the fiber is detd. and then the glass is boiled in distd. water. Besides other factors, the chem. resistance depends on the diam. The weight loss per sq. in. of fiber surface expresses the chem. attack. For the tensile strength an app. similar to that of Michaelis is used. Tensile strength varies over a wide range, and depends on the diam. Comparisons should be made only for specimens of the same diam. I. M. Nov

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



PROCESSES AND PROPERTIES INDEX

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

CA

19

Chemical stability of window glass in which magnesia is substituted for part of the sodium oxide. M. A. Bezborodov and R. M. Presman. *J. Applied Chem.* (U. S. S. R.) 14, 359-61(in French, 361)(1941).—When part of the Na_2O is replaced by MgO, the water resistance of window glass increases, considerably at first, then more slowly. The resistance to Na_2CO_3 increases to a max., and then decreases. Of the glasses investigated, the one having greatest resistance to Na_2CO_3 contained 2.67% MgO and 13.30% Na_2O. 4 references.

A. A. Boehtlingk

COMMON ELEMENTS

COMMON VARIABLES INDEX

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

MATERIALS INDEX

AUTHOR INDEX

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

c4

18

Refractory clays of the Urals. M. A. Bezborodov. *Legkaya Prom.* 2, No. 3/4, 7-10(1942).—Because of conditions created by the war, the glass industry must use Ural clays to replace the clays from the southern regions of European U. S. S. R. Numerous clay deposits are found in the Urals. They can be divided roughly into clays from the Sverdlovsk region and clay from the southern part of the Urals. Generally, the clays from the Sverdlovsk region contain more sand, their fusion temp. is higher (around 1700°), they have a higher water capacity and are contaminated with pyrite. The clays from the south of the Urals contain less sand, are more plastic, are highly dispersive, fuse at a lower temp. (around 1200°), the little Fe they contain is in the form of oxides. These clays resemble the Chasov-Yarsk clays. The south Ural clays are quite suitable for glass making, while the Sverdlovsk clays are preferable for refractories.

M. Hosch

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

CA

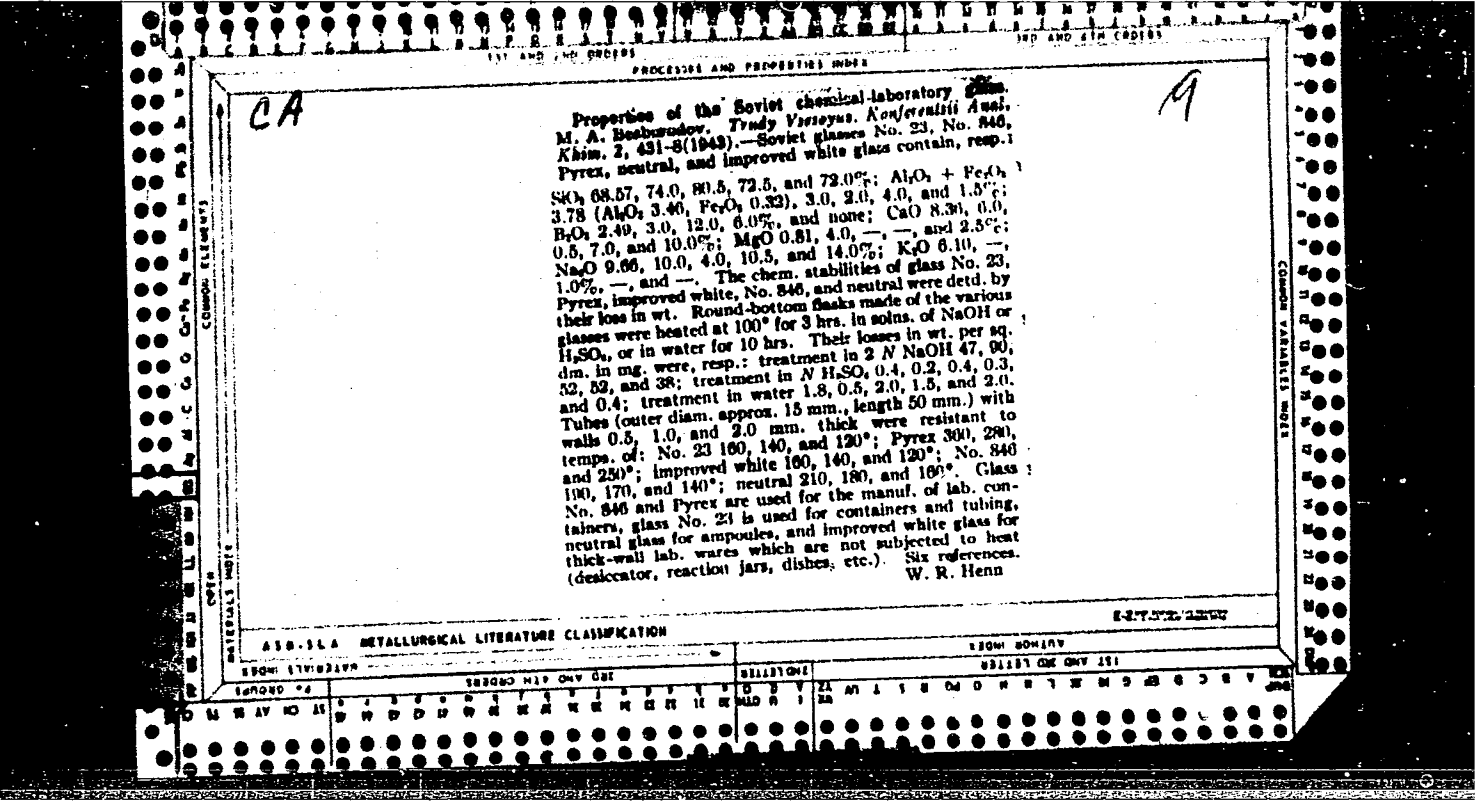
19

New source of refractory materials. M. A. Bezborodov and A. A. Andreev. *Legkaya Prom.* 2, No. 11/12, 11-16(1942).—An account of exptl. and semiplant work on production of refractories from sandstones and quartzites of Turkmen S. S. R. Analyses of typical deposits are given. G. M. Kosolapoff

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

MATERIALS INDEX

AUTHOR INDEX


1ST AND 2ND ORDERS
3RD AND 4TH ORDERS
PROCESSES AND PROPERTIES INDEX
COMMON ELEMENTS
COMMON VARIABLES INDEX
MATERIALS INDEX
ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

CA

9

Properties of the Soviet chemical-laboratory glass.
M. A. Bezborodov. *Trudy Vsesoyuz. Konferentsii Anal.*
Khim. 2, 431-8(1943).—Soviet glasses No. 23, No. 846,
Pyrex, neutral, and improved white glass contain, resp.:
SiO_2 68.57, 74.0, 80.5, 72.5, and 72.0%; Al_2O_3 + Fe_2O_3
3.78 (Al_2O_3 3.46, Fe_2O_3 0.32), 3.0, 2.0, 4.0, and 1.5%;
B_2O_3 2.49, 3.0, 12.0, 6.0%, and none; CaO 8.30, 0.0,
0.5, 7.0, and 10.0%; MgO 0.81, 4.0, —, —, and 2.5%;
Na_2O 9.66, 10.0, 4.0, 10.5, and 14.0%; K_2O 6.10, —,
1.0%, —, and —. The chem. stabilities of glass No. 23,
Pyrex, improved white, No. 846, and neutral were detd. by
their loss in wt. Round-bottom flasks made of the various
glasses were heated at 100° for 3 hrs. in solns. of NaOH or
H_2SO_4, or in water for 10 hrs. Their losses in wt. per sq.
dm. in mg. were, resp.: treatment in 2 *N* NaOH 47, 90,
52, 82, and 38; treatment in *N* H_2SO_4 0.4, 0.2, 0.4, 0.3,
and 0.4; treatment in water 1.8, 0.5, 2.0, 1.5, and 2.0.
Tubes (outer diam. approx. 15 mm., length 50 mm.) with
walls 0.5, 1.0, and 2.0 mm. thick were resistant to
temps. of: No. 23 160, 140, and 120°; Pyrex 300, 280,
and 250°; improved white 160, 140, and 120°; No. 846
190, 170, and 140°; neutral 210, 180, and 160°. Glass
No. 846 and Pyrex are used for the manuf. of lab. con-
tainers, glass No. 23 is used for containers and tubing,
neutral glass for ampoules, and improved white glass for
thick-wall lab. wares which are not subjected to heat
(desiccator, reaction jars, dishes, etc.). Six references.
W. R. Henn

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

CA

17

Bentonite tooth powder. M. A. Besborodov. *Farmatsiya* 6, No. 4, 24-6(1943).—Bentonite is an effective tooth powder, free from objectionable components. It is superior to chalk in adsorption capacity and bactericidal power. Julian F. Smith

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

C

New formula of the refractoriness of clays. M A Bezborodov. *Stekol'naya i Keram. Prom.*, 1945, No. 6, pp. 13-17.—The refractoriness of clay can be calculated from the formula $T = 5.5A + 1534 - (8.3F + 2.0MO)30/A$, where F = FeO (%), MO = sum of TiO_2, CaO, MgO, and alkali (%), and A = silica (%), determined from alumina + silica = 100%. B.Z.K.

COMMON ELEMENTS

OPEN

MATERIALS INDEX

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

AUTHOR INDEX

1ST AND 2ND LETTER

3RD AND 4TH ORDERS

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

CA

The chemical resistance of Na_2O-CaO-SiO_2 glass under storage conditions. M. A. Bezborodov. *Legkaya Prom.* **1945**, No. 7/8, 12-15; cf. *C.A.* **39**, 1202^{1}.—At Na_2O 10% the resistance of glass to Na_2CO_3 decreases with the increase of CaO and decrease of SiO_2. At Na_2O 15% the resistance to Na_2CO_3 first increases with increase in CaO, reaching a max. at Na_2O 15, CaO 10, and SiO_2 75%, then decreases with a further increase in CaO. At Na_2O 20% the resistance to Na_2CO_3 first increases sharply with the increase in CaO, reaching a max. at Na_2O 20, CaO 5, and SiO_2 75%, then decreases with a further increase in CaO. At 25% Na_2O the resistance to Na_2CO_3 first increases sharply, reaching a max. at Na_2O 25, CaO 10, and SiO_2 65%, then decreases with a further increase in CaO. At Na_2O 30 and 35% the resistance to Na_2CO_3 increases with the increase in CaO. It is concluded that at a const. content of Na_2O the resistance of Na_2CO_3 increases with the increase in the ratio Na_2O/CaO and that at a const. content of CaO the resistance to Na_2CO_3 increases with the decrease in the ratio Na_2O/CaO. The optimum compns. of glass with respect to resistance to Na_2CO_3 are: (1) Na_2O 15, CaO 10, and SiO_2 75%, and (2) Na_2O 20, CaO 5, and SiO_2 75%. The optimum compn. of glass with respect to resistance to both Na_2CO_3 and water is Na_2O 15, CaO 10, and SiO_2 75%. W. R. Henn

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

C

Obtaining porcelain without feldspar from Turkmenian raw materials. M. A. BEZBORODOV. *Compt. Rend. (Doklady) Acad. Sci. U.R.S.S.* 47 [8] 508-70 (1945).— With a mixture of three local clays B. obtained a white vitrified porcelain that met service requirements. Analysis of the mix showed that it approximated Sèvres porcelain in chemical composition. 3 references.

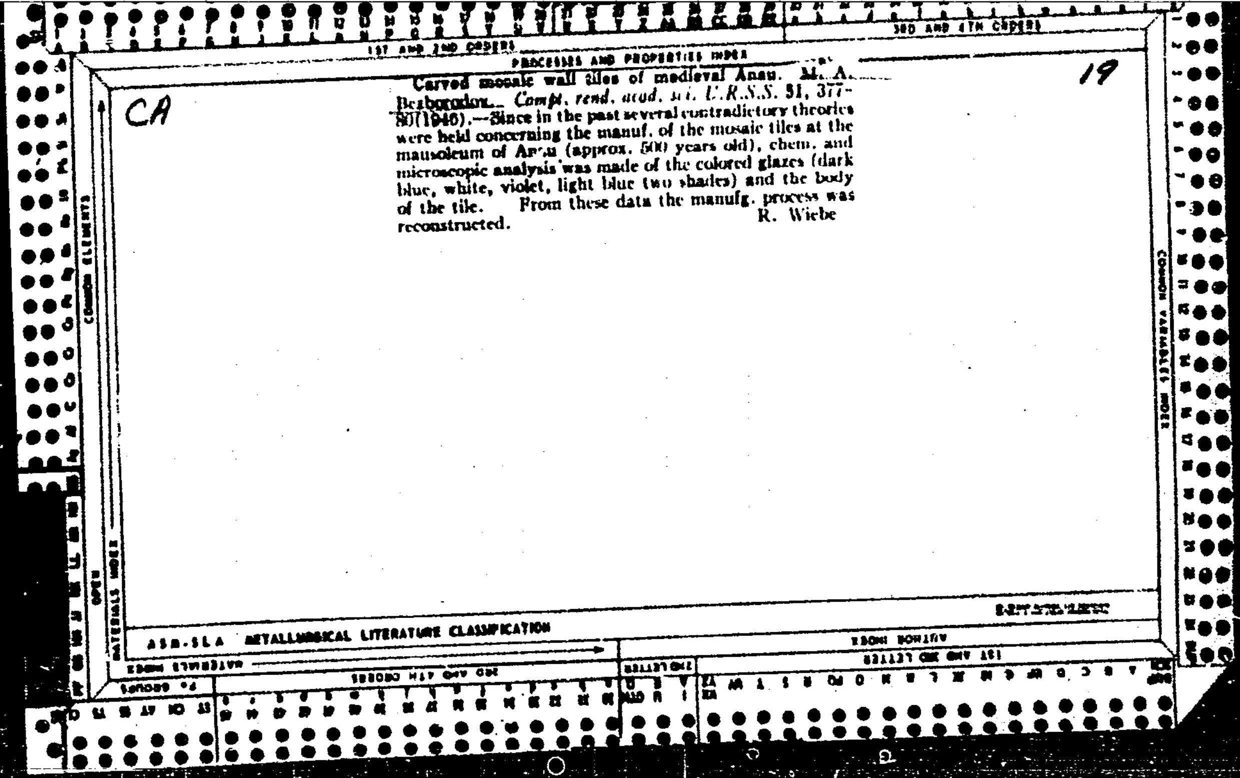
ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

19

CA

Physical meaning of the concept of refractoriness. M. ~~A. Bezborodov.~~ *Doklady Akad. Nauk S.S.S.R.* 50, 363-5(1945).—In plotting the percentage of Al_2O_3 (A) in Al_2O_3-SiO_2 cones against the drop temp. (T) of the cones, the "most probable" curve obtained is $T = 4.2A + 1581$. For the range of 15-80% Al_2O_3 the observed values and those calcd. by this equation agreed closely. The liquidus temps. (T) in the system Al_2O_3-SiO_2 as detd. by the quenching method by Bowen and Greig (cf. *C.A.* 18, 2587) for the interval 15-80% Al_2O_3 can be expressed by $T = 2001 \lg A + 1460$; the calcd. results agree closely with those obtained by Bowen and Greig. The first curve is situated well below the second. Hence, the temps. of refractoriness of Al_2O_3-SiO_2 mixts. indicate some phenomenon other than melting. Refractoriness is defined as the temp. at which the viscosity of the melting ceramic material reaches the value of the pyroscopic viscosity. By utilizing data on the viscosity of Chasov-Yar clay at 1480-1580°, the pyroscopic viscosity was calcd. as not greater than 10^9 poises. This value should be checked experimentally with various mixes and at different temps.

B. Z. Kamich

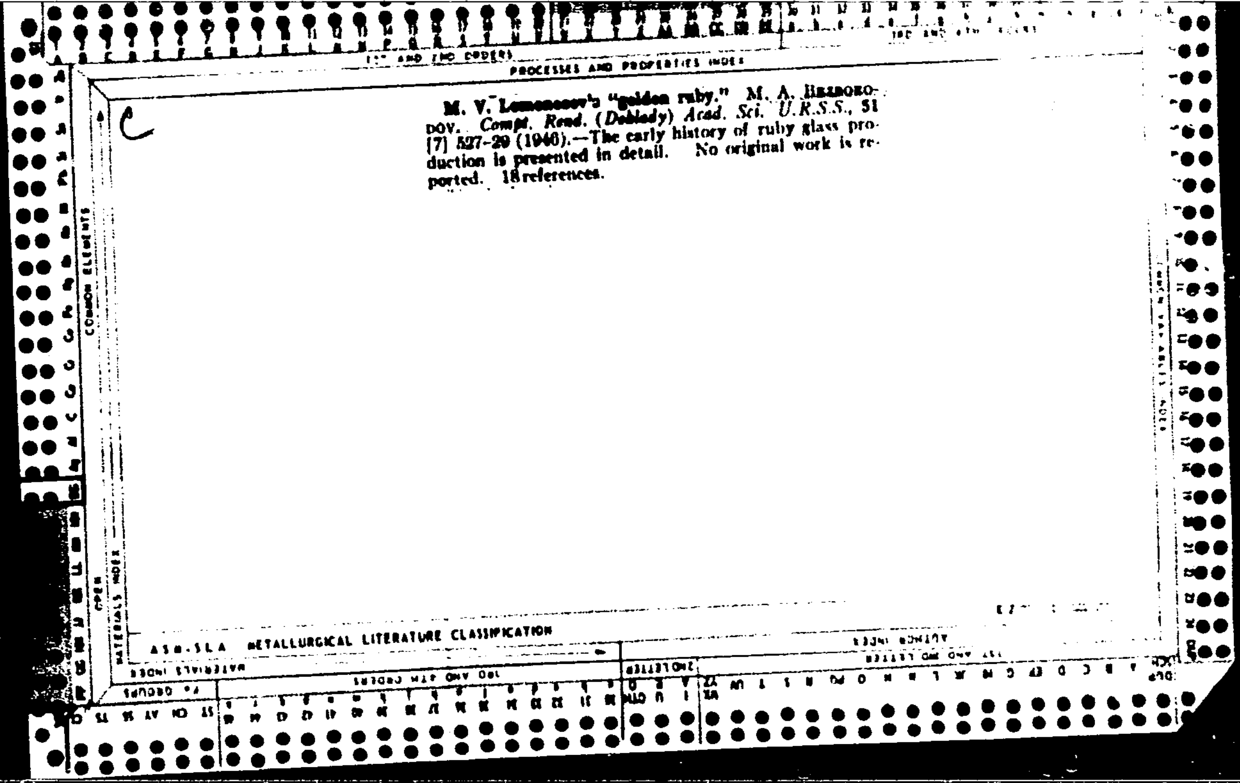


1ST AND 2ND ORDERS
3RD AND 4TH ORDERS
PROCESSES AND PROPERTIES INDEX
COMMON ELEMENTS
MATERIALS INDEX
ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION
AUTHOR INDEX
1ST AND 3RD LETTER
2ND LETTER
3RD AND 4TH ORDERS
COMMON VARIABLES INDEX

CA

19

Carved mosaic wall tiles of medieval Anau. M. A. Bezborodov. *Compt. rend. acad. sci. U.R.S.S.* 51, 377-80(1946).—Since in the past several contradictory theories were held concerning the manuf. of the mosaic tiles at the mausoleum of Anau (approx. 500 years old), chem. and microscopic analysis was made of the colored glazes (dark blue, white, violet, light blue (two shades)) and the body of the tile. From these data the manufg. process was reconstructed. R. Wiebe



1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

C

M. V. Lomonosov's "golden ruby." M. A. Bezborodov. *Compt. Rend.* (*Doklady*) *Acad. Sci. U.R.S.S.*, 51 [7] 527-29 (1946).—The early history of ruby glass production is presented in detail. No original work is reported. 18 references.

COMMON ELEMENTS

MATERIALS INDEX

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

BEZBORODOV, M. A.

COMMON ELEMENTS

C

BEZBORODOV, M, A.

Lomonosov—founder of scientific glassmaking. M. A. Bezborodov. *Steklo i Keram.*, 5 [4] 4-7 (1948).—Historical. Cf. *Ceram. Abstracts*, 1947, July, p. 152c.

B.Z.K.

BEZBORODOV, M.A.

D. I. Vinogradov. M. A. Bezborodov. *Steklo i Keram.*, 5 [5] 16-20 (1948).—An account is given of the scientific activities of D. I. Vinogradov, outstanding Russian ceramist of the 18th century. He was the initiator of the first porcelain factory in Russia. B.Z.K.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

BEZBORODOV, M. A.

Work of K. G. Laksman on the use of sodium sulfate in glassmelting. M. A. Bezborodov and F. G. Klochkov. *Steklo i Keram.* 5, No. 10, 13(1948). A historical account is given. A glass plant using sulfate was constructed by Laksman in 1784 near the city of Irkutsk in Siberia.
B. Z. K.

BEZBORODOV, M. A.

Chemistry and technology of silicates in the works of V. M. Severgin. M. A. Bezborodov. *Steklo i Keram.*, 5 [7] 11-17 (1948). Historical account of the scientific career of V. M. Severgin (1765-1826). B.Z.K.

METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

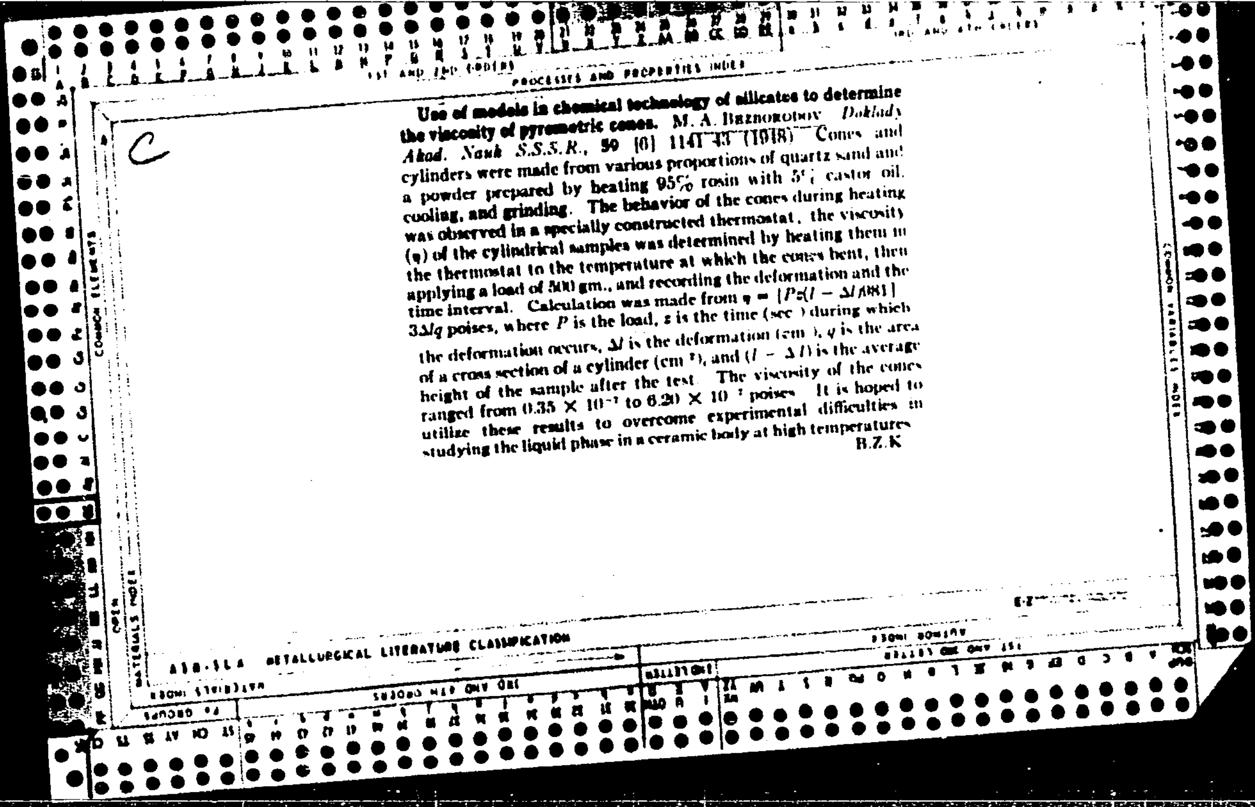
CA

2

First scientific chemical laboratory in Russia. M. A. Bezborodov. *Steklo i Keram.* 5, No. 9, 9-12(1948). An account of the efforts of Lomonosov in establishing the first chem. lab. in Russia in 1748. Because of the furnaces in the lab. and of the intended work, it may be considered the first silicate lab. in Russia. In it was laid the foundation for scientific glass melting.

B. Z. Kamich

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



PROCESSES AND PROPERTIES INDEX

C

Use of models in chemical technology of silicates to determine the viscosity of pyrometric cones. M. A. Bezborodov. *Doklady Akad. Nauk S.S.S.R.*, 59 [6] 1141-43 (1948). Cones and cylinders were made from various proportions of quartz sand and a powder prepared by heating 95% rosin with 5% castor oil, cooling, and grinding. The behavior of the cones during heating was observed in a specially constructed thermostat; the viscosity (η) of the cylindrical samples was determined by heating them in the thermostat to the temperature at which the cones bent, then applying a load of 500 gm., and recording the deformation and the time interval. Calculation was made from $\eta = [Pz(l - \Delta l)/981]/3\Delta l q$ poises, where P is the load, z is the time (sec.) during which the deformation occurs, Δl is the deformation (cm.), q is the area of a cross section of a cylinder (cm.^{2}), and $(l - \Delta l)$ is the average height of the sample after the test. The viscosity of the cones ranged from 0.35×10^{-1} to 6.20×10^{-7} poises. It is hoped to utilize these results to overcome experimental difficulties in studying the liquid phase in a ceramic body at high temperatures. B.Z.K.

A18-SLA METALLURGICAL LITERATURE CLASSIFICATION

BEZBORODOV, M. A.

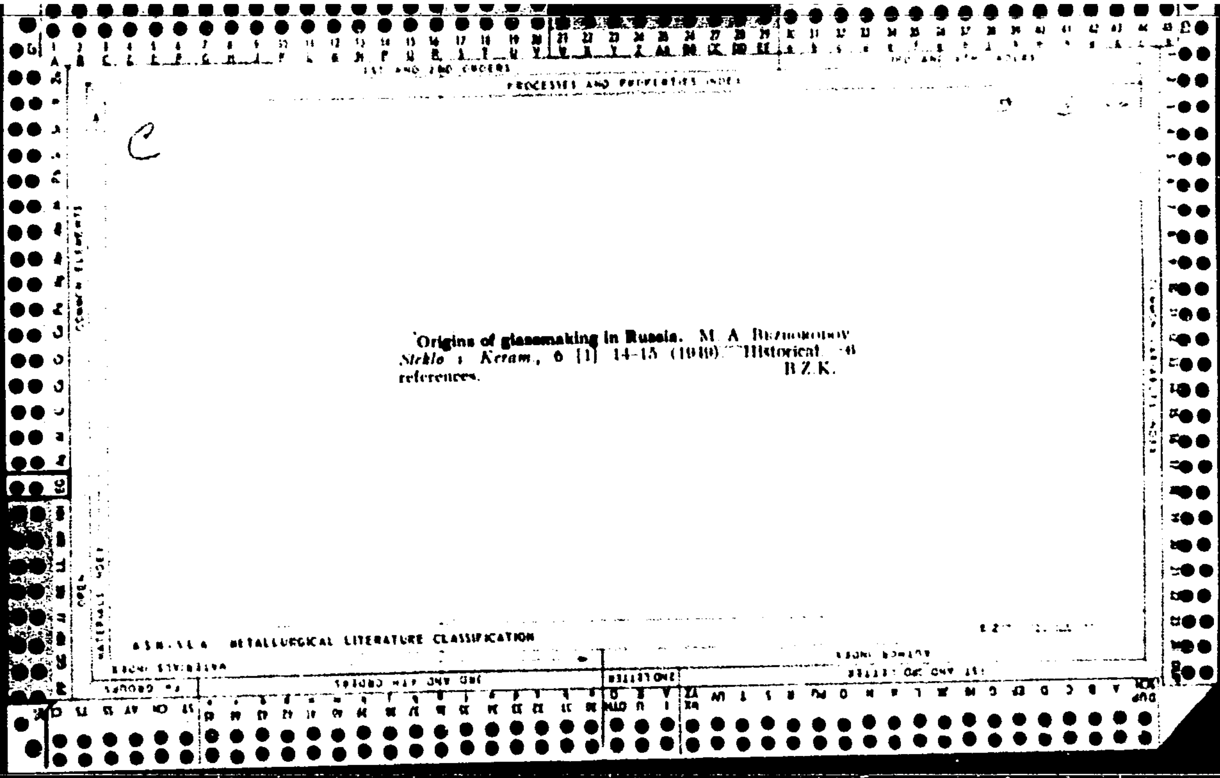
Bezborodov, M. A. - "M. V. Lomonosov and his first scientific Chemical Laboratory in Russia(1748-1948)", (Report), Soobshch. o nauch. rabotakh chlenov Vsesoyuz. khim. o-va im. Mendeleyeva, 1949, Issue 2, p. 20.

SO: U-4630, 16 Sept. 53, (Letopis 'Zhurnal 'nykh Statey, No. 23, 1949).

BEZBORODOV, M. A.

Bezborodov, M. A. "Ideas on the nature of china in the chemical literature of the 18th century," Trudy In-ta istorii yestestvoznaniya (Akad. nauk SSSR), Vol. III, 1949, p. 236-47

SO: U-5241, 17 December 1953, (Letopis 'Zhurnal 'nykh Statey. No. [illegible], 1949)



1ST AND 2ND ORDERS
PROCESSES AND PROPERTIES INDEX
ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

C

Origins of glassmaking in Russia. M. A. Bezborodov. *Steklo i Keram.*, 6 [1] 14-15 (1949). Historical. 48 references.
B.Z.K.

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9-5 49

D. I. Mendeleev and glassmaking. M. A. Bezborodov. *Steklo i Keram.*, 6 [2] 13-15 (1949). Historical. 12 references.

B.Z.K.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

BEZBORODOV, M.A., professor; YERMOLENKO, N.F., professor; ASINOVSKIY, V., otvetstvennyy za vypusk; ALEKSANDROVICH, Kh., tekhredaktor

[Essays on the history of glass chemistry and technology in Russia] Ocherki po istorii khimii i tekhnologii silikatov v Rossii. Minsk, Izd-vo Akademii nauk Belorusskoi SSR, 1950 197 p. (MLRA 7:11)

1. Chlen-korrespondent Akademii nauk Belorusskoy SSR (for Bezborodov)
2. Deystvietl'nyy chlen Akademii nauk Belorusskoy SSR (for Yermolenko)
   (Glass-History)

BCS

Glass

1569. The work of the early 19th-century Russian technologist Shchebenin on increasing the thermal stability of glass.—M. A. Bezborodov and M. F. Shur (*Stek. Keram.*, 7, No. 10, 3, 1950). It is claimed that Russians had dealt with the thermal stability of glass in the thirties of the 19th c. Shchebenin annealed drinking glasses and changed their surface by a treatment with some unknown "mineral acids." It is claimed that the ware thus treated did not crack even if suddenly dipped into boiling water.

CA

19

Russian glass in the XIIth century. M. A. Bezborodov (I. V. Stalin Belorussian Polytech. Inst., Minsk). *Doklady Akad. Nauk S.S.S.R.* **74**, 799-800(1950). Archeological finds indicate that glassmaking in Russia started in the IX-Xth century. Results of analysis of a glass bracelet, relating to the XIIth century, are presented.

B. Z. Kamich

. CA

19

Leaching-out of window glass during storage. M. A. Bezborodov and L. A. Zhunina. *Steklo i Keram.* 8, No. 6, 8-9(1951).—The index of chem. stability(Δ) under conditions of moist storage is detd. from $\Delta = [mNa_2O + nK_2O + pMgO] - [qAl_2O_3 + rFe_2O_3]$ where m, n, p, q, and r are the % of Na_2O, K_2O, MgO, Al_2O_3, and Fe_2O_3, resp. This formula is applicable to 5-component glasses having SiO_2 70-74, Al_2O_3 0-3, CaO 7-13, MgO 0-5, and Na_2O 13-15%. Glass is classified as follows: group I($\Delta < 16.5$) can be stored for long periods under moist conditions without showing signs of deterioration; group II ($\Delta > 16.5$ and < 18.0) deterioration depending on conditions; group III ($\Delta > 18.0$) must be stored under moisture-free conditions. A nomogram is given for detg. the group of a given glass.

B. Z. Kamich

BEZBORODOV, M.A.

1 mH.

USSR

Nature of the colloidal fraction of the clays of Gorodnyansk, White Russia. M. A. Bezborodov and E. E. Mazo. *Doklady Akad. Nauk S.S.S.R.* 78, 339-42(1951).—Ten samples of clays from the Gorodnyansk deposits in the Pinsk district of White Russia were examd. primarily to det. the influence of the colloidal fraction (< 0.001 mm. diam.) on ceramic and refractory properties. The Gorodnyansk clays can be divided into 5 classes as regards color from black through gray to light gray, and further distinguished by the presence or absence of ferruginous spots. The black clays are the most dispersed, contg. 67.5% of the finest fraction < 0.001 mm. particle diam. The light and light-gray clays contain less than 50% of this fraction, one sample having only 33.7%. The data indicate that the light clays, with the lowest colloidal fraction, dry without cracking or deforming, while the black and dark-gray clays under the same conditions crack and deform badly. The same holds for the behavior in the kiln. Exptl. curves show that the amt. of colloidal matter has a profound influence on ceramic properties. A second object of the paper is to establish the mineralogical compn. of the colloidal fraction of a clay. For this purpose the fraction < 0.001 mm. was investigated: (1) Loss in weight when heated to 105, 180, 300, 400, 450, 500, 600, 700, and 800° was obtained. The greater part of the water was given off in the interval 400-600°, characteristic of

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Bezborodov, M. A.: Ocherki po istorii russkogo steklodeliya (Outlines of History of Glassmaking in Russia). Moscow: Promstroiizdat. 1952. 167 pp. R. 4.25.

BEZBORODOV, M.A.; SHUR, M.F.

First glass plant in Petersburg. Steklo i Keram. 9, No.1, 10-11 '52.
(CA 47 no.18:9071 '53) (MLRA 4:12)

BEZBORODOV, M.A.

A.K. Krupskiy's work in the field of glass-making
Stek. i ker., 9, no. 6, 1952

BEZBORODOV, M.A.

Brittleness breaks in a riveted seam of a boiler drum
Elek. Sta. 23, no. 3, 1952
Inzh.

USSR/Chemistry - Bibliography Aug 52

PA 228T15

"Review of 'Khimiya v Izdaniyakh Adademii Nauk SSSR' (Chemistry in the Publications of the Academy of Sciences USSR), No 2, 1931 - 1935, by O. P. Kamenogradskaya and V. P. Aleksyeva," M. A. Bezborodov

"Zhur Prik Khim" Vol 25, No 8, p 904

This is the 2d issue of a work undertaken by the Library of Acad Sci USSR, to make available to chemists a bibliography of all the books and articles on chemistry published by the Academy during its existence. This issue, published in Moscow/Leningrad,

228T15

deals with the yrs 1931 - 1935, whereas the 1st issue, published in 1947, dealt with the 200 yrs from 1728 to 1930.

228T15

BEZBORODOV, M. A.

BEZBORODOV, M.A.

"D.I. Vinogradov, originator of Russian porcelain"
Reviewed by P.P. Budnikov.
Priroda 41, no. 1, 1952

BEZBORODOV, M.A.

D.M. Vinogradov - vydaiushchiisia keramik XVIII veka (D.M. Vinogradov, outstanding ceramic maker of the 18th century) Moskva, Promstroiizdat, 1953. 87 p.

SO: Monthly List of Russian Accessions, Vol. 7, No. 5, August 1954

BEZBORODOV, M.A.

[Stones and defects in glass; their origin, properties, detection and prevention] Kamni i svili v stekle; ikh proiskhozhdenie, svoistva, raspoznavanie i preduprezhdenie. Izd. 3., dop. i ispr. Moskva, Gos. izd-vo lit-ry po stroit. materialam, 1953. 326 p. (MLRA 7:4)
(Glass manufacture)

Bezborodov, M. A., Mazo, E. E., and Zuyev, N. I.

"Nature of Finely-Dispersed Part of Clays of Certain Deposits in Belorussian SSR," Izv. AN USSR, No 4, 1953, 114-127

The authors investigated the clays of the Vidibor deposits in Pinsk oblast, the Levaya Ruba deposits in Vitebsk oblast, and the Malinovka deposits in Brest oblast. The chemical composition of the clays are given in a table. (RZhGeol, 1, 1954)

SO: W31128, 11 Jan 55

BEZBORODOV, M.A.

USSR.

Chemical composition of colored glasses of M. V. Lomonosov. M. A. Bezborodov and V. I. Chumakov (M. V. Lomonosov Museum, Acad. Sci. U.S.S.R., Leningrad). *Doklady Akad. Nauk S.S.S.R.* 91, 609-11(1953).—Seven new chem. analyses of molten glasses are given by Lomonosov; they are interesting because of the systematic addns. of coloring reagents, Cu_2O (6.1% and 3.5%) detd. in an orange-red and a sealing wax-red glass with 40.6% and 60.5% PbO, 1.0% and 3.8% ZnO, resp. L. was familiar with the effects of the addn. of Sb_2O_3 (3.2% and 1.9% in two different glasses), of MnO, CuO (9.8% in a blue glass), and especially with the manuf. of Au-ruby glass. These results of the analyses are in good agreement with the notes given by L. in his lab. journals of 1751-2, and the raw materials he has used. Seventy exptl. batches are known, and 2184 melts have been described for the production of mosaic colored glass, for jewelry imitations, etc. The glasses have in most cases been prepd. first by fritting the batch without the pigments, and second by fusion with the pigments added. W. Eitel

BEZBORODOV, M.A.

Red spherolite in green glass. M. A. Bezborodov and V. V. Lapin. *Doklady Akad. Nauk S.S.S.R.*, [illegible] (1953).—Red spherolites up to 25 to 30 mm. in diameter were observed in green glass. The spherolites were surrounded closely by the green glass. On the basis of SiO_2, CaO, and Na_2O content, the spherolites and glass were similar; the main difference was in the degree of oxidation of Cu—in spherolites Cu_2O and in glass CuO. The spherolites were a three-phase substance consisting of (1) crystals of $Na_2O \cdot 2CaO \cdot 3SiO_2$, (2) Cu_2O, and (3) intraspherolite glass.

B.Z.K.

BEZBORODOV, M. A.

Nature of finely dispersed fractions of clays from some deposits in the Belorussian S.S.R. M. A. Bezborodov, E. E. Mazo, and N. I. Zubv. *Izvest. Akad. Nauk Belorus. S.S.R.*, 1953, No. 4, pp. 115-27; *Chem. Abstr.*, 49 [2] 789f (1955). – Clays from 3 deposits were examined. The mineralogical composition was determined on the fraction <0.001 mm. The fine fractions of all the clays were polymineral and contained at least two minerals. The clays contained a montmorillonite-type mineral resembling beidellite. The clays contained 2.17 to 7.83% Fe oxides, but none was found in the free state. Besides the montmorillonite group, the fraction <0.001 mm of the first clay (Pinsk region) contained an equal quantity of hydromica, the second clay (Brest region) contained approximately 10% quartz and clay, and the third (Vitebsk region), 10 to 15% hydromica.

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BEZBORODOV, M.A.

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USSR

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Effect of sodium chloride on the formation of glass in soda-lime-silica batch. M. A. Bezborodov and A. M. Shumilin. *Vestsi Akad. Navuk Belarus. S.S.R.* 1954, No. 2, 83-8.—The effect of NaCl on the formation of glass in the 75% SiO_2-10% CaO-15% Na_2O batch was studied. The results indicate the individual effect of NaCl on each of the constituents of the glass and in the following combinations: Na_2CO_3 + NaCl (I), $CaCO_3$ + NaCl (II), SiO_2 + Na_2CO_3 + NaCl (III), SiO_2 + $CaCO_3$ + NaCl (IV), Na_2CO_3 + $CaCO_3$ + NaCl (V), and SiO_2 + $CaCO_3$ + Na_2CO_3 + NaCl (VI). Four methods of studying the chem.-phys. processes during the glass formation have been employed: thermal and microscopic analyses and the wt. analyses (loss of wt.) during dynamic (heating 5 g. mixt. at the rate of 12°/min. from 20 to 1280°) and isothermic (the exptl. samples were put in succession into the ovens at temps. from 300 to 1300° after each 100° temp. rise) treatments of the samples. NaCl itself starts to sublime at 600°; at 1300° its sublimation is finished. I: endothermic effect is noticed at 615° with a max. at 638° (formation of the alloy), at 720° another endothermic effect starts with a max. at 840° (melting of NaCl and soln. in it of Na_2CO_3). II: at 500° CaO is formed ($n = 1.835$) from $CaCO_3$; NaCl slightly decreases the temp. of the $CaCO_3$ dissocn. III: a slight reaction occurs between the solid phases of SiO_2 and Na_2CO_3 at 300° (microscopic analysis); at 700° a rapid loss of wt. of the mixt. takes place as a result of the reaction, $Na_2CO_3 + 2SiO_2 = Na_2Si_2O_5 + CO_2$, presumably with the monosilicate as an intermediary product. On a thermodiagram

M. A. Bezborodov and A. M. Shmulin

3 endothermic effects are seen, at 575, 638, and 380°, which
correspond to the transformation of β-quartz into α-quartz,
and the eutectics between Na$_2$CO$_3$ and NaCl, and Na$_2$SiO$_3$
and SiO$_2$, resp. At 800° the mixt. melts; NaCl increases
the rates of the process. IV: the solid phases start to react
at 400°; at 500° CaO and 600° CaSiO$_3$ (n_m = 1.628) are
formed. On the thermodiagram a sharp thermoeffect at
800°, which corresponds to the melting of NaCl, is present.
V: wt. analyses indicate that the evolution of the gaseous
products ends slightly below 1200°. VI: all the properties
observed during the glass formation from the I-V mixts. are
to some extent summarized in this 4-component glass batch.
The greatest wt. loss takes place at 600-700°. At this temp.
the silicates, Na$_2$SiO$_3$, Na$_2$SiO$_3$, and CaSiO$_3$, are formed;
the rate of the reaction is intensified by the presence of the
eutectic point for the Na$_2$CO$_3$ + NaCl binary mixt. at 638°.
Microscopic analysis revealed that at 700° the glass for-
mation starts which then increases with the temp.; at 1100°
the process of the formation of the glass is finished.

B. Wierzbicki

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USSR/ Engineering - Glass manufacture

Card 1/1 Pub. 104 - 11/11

Authors : Appen, A. A.

Title : Manual on the elimination of flaws in glass

Periodical : Stek. i ker. 4, 30-32, Apr 1954

Abstract : Review is presented of a book by M. A. Bezborodov, entitled "Stones and Waviness Flaws in Glass", (1953), which offers numerous suggestions for combatting flaws in glass. One USSR reference (1952).

Institution: ....

Submitted: ....

BEZBORODOV, M.A.

Mi

✓ **Investigations of the relationship between physical properties and chemical composition of glass in the XVIII-XIXth centuries.** M. A. Bezborodov. *Vestsi Akad. Navuk Belarus. S.S.R.* 1954, No. 5, 100-16.—A discussion: in the 18th and 10th centuries the phys. properties of glass (compressibility, stretching, elasticity, and thermal extension) were considered as functions of its chem. compn., without considering the glass structure. 21 references. E. W.

BEZBORODOV, M.A.

BEZBORODOV, M.A.; SHUR, M.F.

Russian glass works technology in the 18th century. Trudy po ist.tekh. no.10:3-22 '54. (MLRA 8:3)
(Glass manufacture--History)

BEZBORODOV, M.A.

USSR/ Physics - Iridescence

Card 1/1 Pub. 104 - 5/14

Authors : Bezborodov, M. A., Act. Mem. Acad. Sci., USSR; and Savitskiy, S. E.

Title : Iridescence of glass

Periodical : Stek. i ker. 11/3, 14-15, Mar 1954

Abstract : A description is given of experiments performed to determine the nature of iridescence. The specimens experimented on were composed mainly of SiO_2 and other oxides such as enter into the composition of glass, and were tested for iridescence at different temperatures. It was found that the pheonomenon of iridescence in glass depends on the capacity of SnO_2 to cling to the surface of glass and other substances and form a thin film. Five Russian references; 1931-1951.

Institution: .....

Submitted: .....

BEZBORODOV, M.A

USSR

Spodumene porcelain. M. A. Bezborodov and F. F. Mikhalevich. *Steklo i Keram.*, 11 [7] 5-9 (1954).—All mixes were based on the triangular diagram of quartz sand, kaolin + bentonite, and pegmatite + spodumene. The optimum mix consisted of kaolin 45.5, bentonite 3.0, quartz sand 15.0, spodumene 10.6, and pegmatite 24.9%. Its molecular formula was as follows:

K_2O	0.219				
Na_2O	0.290				
Li_2O	0.295	Al_2O_3	3.775	SiO_2	16.220
CaO	0.101	Fe_2O_3	0.030	TiO_2	0.070
MgO	0.036				

Characteristics of the mix fired at 1250°C. were as follows: water absorption 0.05%, crushing strength 4080 kg./cm.², bending strength 548 kg./cm.², coefficient of thermal expansion (20° to 400°) 54.0 × 10^{-7}, whiteness 71.6%, and translucence (1.24 mm. thick) 0.792%. Glaze was prepared from quartz sand 15.6, kaolin 7.0, pegmatite 58.7, dolomite 17.4, ZnO 3.4, and spodumene 2%. Its molecular formula was as follows:

K_2O	0.166				
Na_2O	0.141				
Li_2O	0.012	Al_2O_3	0.482	SiO_2	3.358
CaO	0.328	Fe_2O_3	0.005	TiO_2	0.003
MgO	0.303				
ZnO	0.120				

Calculated coefficient of thermal expansion was 57.5 × 10^{-7}. No crackle was observed after 11 heat-shock cycles. B.Z.K.